ATTACHMENT G

EVALUATION OF POTENTIAL CONSTITUENTS OF CONCERN

TECHNICAL MEMORANDUM

To: Mr. Allan Taylor, MDEQ Waste and Hazardous Materials Division

From: Philip B. Simon, ATS
Peter M. Simon, ATS

Date: December 1, 2006

RE: PCOI/COI/TAL Evaluation – Target Analyte List Development
Tittabawassee River & Upper Saginaw River, Michigan
Midland Soils Investigation, Michigan

The Tittabawassee River Sampling and Analysis Plan (SAP, rev. 070706, section 5.1.1) identifies the seventeen federally regulated chlorinated dioxin and furan congeners as the primary Constituents of Interest (COI) for the ***GeoMorph***™ site characterization project. That section of the SAP also discusses the need to identify and develop data for other, secondary COI based on substances used or produced at the Dow Chemical Company Midland Plant (Midland Plant). This memorandum describes the process utilized to identify those secondary COI and develop Target Analyte Lists (TALs) to address them in the Tittabawassee River, Upper Saginaw River and Midland Soils site characterization projects.

Dow Master PCOI List

On June 1, 2006, Mr. Ben Baker of The Dow Chemical Company (Dow) submitted a document concerning this issue entitled *"Target Analyte List Development – Tittabawassee River and Floodplain."* This document contained a discussion draft Target Analyte List (TAL), and presented the methodology used to select the substances for this TAL from a master list of the chemicals used and produced at the Midland Plant over its 100+ years of operation as a chemical manufacturing facility. On June 23, 2006, ATS submitted on behalf of Dow electronic and paper copies of the chemical database assembled by Dow staff to generate the June 1, 2006 submittal. This database contains 802 line items and we are referring to it as the Dow "Master List."

Consultants in Chemistry & Environmental Science
290 South Wagner Road, Ann Arbor, Michigan 48103 Tel 734/995-0995 Fax 734/995-3731

PCOI/COI/TAL Evaluation Process

Subsequent to that submittal, ATS and MDEQ worked collaboratively to develop a process to systematically evaluate each of the 802 references on the Master List, plus additional COI coming from other sources. The objective of this effort was to select substances that should be included on the final TALs for the Tittabawassee River, Upper Saginaw River and Midland Soils site characterizations. The process is detailed in the flow chart given in Attachment 1. Key definitions used in this process, and in RIWP and QAPP documents relating to these site characterizations are given in Attachment 2.

As shown in the process flow chart, this work initially involved crosschecking product compositions, chemical names, CAS numbers, and eliminating overlapping or redundant references. Identified information problems within the database were categorized as follows:

- "Redundant entries"
- "Multi-compound references"
- "CAS number reassigned"
- "Salt references"
- "Composition Uncertain"
- "ID Conflict" (CAS # versus chemical name)

A case narrative was prepared to address each reference falling into each of these categories. The first four case narrative categories ("Redundant entries," "Multi-compound references," "CAS number reassigned," and "Salt references") were resolved by ATS. The resolution for each line item is detailed in the corresponding case narrative, organized by Dow reference number in the Master List (see Attachment 3). The remaining two categories ("Composition Uncertain" and "ID Conflict") were referred back to Dow for resolution by the staff that entered the information (Attachment 4). The information problems for all but approximately 30 of these references have been resolved as of this writing. In some instances, resolution of case narrative items resulted in addition of substances to the database. A case narrative was created to keep track of such database additions (Attachment 5).

Polymers

Some of the materials referenced in the Master List were polymers, or polymer-based products. Because of the limited bioavailability of polymeric materials, and the general lack of environmental analytical methods for such macromolecules, ATS and MDEQ agreed to segregate those referenced, polymeric materials having an average molecular weight greater than 5,000 Daltons into the following case narrative for separate consideration:

- "Polymers (MW >5000)"

This case narrative category was referred to Dow for affirmation that the materials were, indeed, polymers of that size (see Attachment 4). Polymers with average molecular weight of less than 5,000 Daltons were included in the analytical methods evaluation. Larger polymers were excluded from methods evaluation at this time.

Site-Specific Monitoring "Positives"

To assure that contaminants showing up in biomonitoring of the Tittabawassee and Saginaw Rivers were appropriately considered in the site characterizations, ATS and MDEQ agreed to add all such biomonitoring "positives" to the COI database if they were not already present. Fish studies conducted in 1998 and 2002 were the primary source of this information, however other biomonitoring studies available at the time of this writing were also reviewed. The aggregate of these biomonitoring "positives" results in eight compounds being added to the database, as recorded in the following case narrative (Attachment 5):

- "Biomonitoring Positives - Database Additions"

In addition, to assure appropriate consideration of substances that may have been released to the Tittabawassee River through groundwater-related migration pathways prior to the installation of the Revetment Groundwater Intercept System (RGIS), monitoring data from the RGIS system were reviewed and all monitoring "positives" were identified. Any RGIS system monitoring "positive" substance not already in the database was added and recorded in the following case narrative:

- "RGIS System Positives – Database Additions"

Review of RGIS system monitoring data resulted in the addition of nine compounds to the database (Attachment 5).

Midland Soils PCOI/COI

The Midland Soils site characterization has a somewhat different set of COI to consider, focusing primarily on the air-release history of the Midland Plant. To address this, Dow staff assembled a list of PCOI anticipated from historical and current air-discharge sources including tar burners, waste incinerators, and others. This PCOI list included polynuclear aromatic hydrocarbons, chlorobenzenes, chlorophenols, chlorinated dioxins and furans, polychlorinated biphenyls, and all the substances reported by the facility under the United States Environmental Protection Agency (USEPA) SARA III

TRI reporting program. In addition, Dow staff included a list of approximately 200 compounds and TICs reported by USEPA as "Products of Incomplete Combustion (PICs)" from research regarding incineration disposal of halogenated chemical wastes. In total, this Midland Soils PCOI list contains references to 407 substances (Attachment 6).

The Midland Soils PCOI list was error-checked and reviewed to determine which substances were common with the Tittabawassee River/Saginaw River COI database. Those substances not already in the database were added, and recorded in the following case narrative:

- "Midland Soils COI – Database Additions"

This resulted in approximately 200 additional references in the COI database, approximately half of which are TICs from the USEPA PICs list (Attachment 5). Integrating the Midland Soils COIs into a common database with the Tittabawassee River/Saginaw River COIs allows the Dow Master List and derived COI database to be used for all three site characterizations, facilitating analytical method selection, development of TALs, and standardization of data quality objectives in project QAPPs.

COI Database

As shown on the process flow chart, the error-checked and edited Master List serves as the core database for COI evaluation and TAL development. The source lineage for all references in this database has been retained for audit purposes. It is anticipated that the COI database will be periodically updated to reflect new information developed during the site characterizations, and that it will be useful in future phases of work, including ecologic and human health risk analysis, and evaluation of corrective action alternatives. The current version of the database, in spreadsheet form as of this writing, is available on-line in the ***eProject***™ workspaces for the Tittabawassee River, Saginaw River and Midland Soils projects.

Analytical Methods Evaluation

One of the purposes of the COI database is to serve as the basis for evaluating which substances have available analytical methods and can be included in monitoring for site impact. To facilitate the analytical methods evaluation task, all the substances in the COI database were classified according to their elemental composition and chemical functionality, using the following groupings:

- Organochlorine compounds
- Organobromine compounds

- Other organohalogen compounds
- Organophophorus compounds
- Phenols, aromatic alcohols and aldehydes
- Organic acids, and corresponding salts
- Amines and other organic bases, and corresponding salts
- Polynuclear Aromatic Hydrocarbons, and derivatives
- Aliphatic and aromatic hydrocarbons, alcohols, ethers, carbonyl compounds, and other heteromolecules
- Organometallic compounds
- Metals and other inorganic compounds

Each substance was coded in the COI database so that the queries could be made to review classes of chemicals with analytical chemistry commonality—that is, they could be addressed with the same analytical method. In many cases, substances fell into multiple chemical classes (e.g. pentachlorophenol is both an organochlorine compound, and a phenolic compound; chloroacetic acid is both an organochlorine compound and an organic acid; tryptophan is both an organic acid and an organic base).

To determine the availability of analytical methods, current versions of all U.S. Environmental Protection Agency SW-846 RCRA methods were considered in the analytical methods evaluation process. Each substance was evaluated separately to determine whether it was a standard target analyte in each RCRA analytical method suitable for that COI group, or whether it could be included either as an extended target analyte or as a site-specific tentatively identified compound (TIC) within the conditions of the method. At the same time, each substance was also coded to indicate whether USEPA has designated it for RCRA Appendix IX profiling.

Substances that are standard target analytes in USEPA RCRA methods were coded in the database with the letter “T”. In those cases where USEPA has indicated that method conditions can be extended to include a particular substance, or if, based on structure/activity considerations, there is a possibility the substance could be included as a target analyte the substance was coded with the designation “?”. In a number of circumstances USEPA has designated a substance as a target analyte in one method (e.g. tetrachlorophenol [25167-83-3] in USEPA 8041), but not in another similar method applicable to that chemical class (e.g. USEPA 8270). If USEPA has designated the substance for RCRA Appendix IX profiling, the substance was coded with an “X” under the Appendix IX heading. For certain substances, no suitable USEPA analytical methods exist. These COIs were coded with an “X” under the “No EPA Method” heading.

Evaluation of Site Positives/Designation of Extended Target Analytes

Once standard target compounds were identified in the COI database, the lists of “Biomonitoring Positives” and “RGIS System Monitoring Positives” were reviewed to

assure that all such compounds were included as fully calibrated, target analytes in one or more analytical methods. In those cases where these site positive substances were not standard USEPA target analytes, they were coded in the database with the designation "E" under the appropriate analytical method headings so that they would be included as extended target analytes in the TALs.

Tentatively Identified Compounds

All analytical methods referenced in the TALs specify mass spectrometric detection, primarily because of the selectivity this technique brings and its potential for post-acquisition data analysis. Ion current chromatograms of multi-compound analytical methods utilizing mass spectrometric detection (e.g. USEPA 8260 and 8270) often contain useful qualitative and quantitative information for substances beyond the fully-calibrated target analytes. Qualitative and quantitative information about the substances responsible for "non-target peaks" in such chromatograms can be included in the laboratory data reports if the peaks are handled using the procedure for Tentatively Identified Compounds (TICs), as specified in USEPA Methods 8260B and 8270C (section 7.6.2 in both methods). Post-acquisition data analysis for TICs can be optimized for site-specific COIs by identifying those compounds to the analyst as site-specific TICs in the TALs.

ATS and MDEQ have agreed upon a specification for treatment of TIC information, and incorporating TIC data into project data reports (Attachment 7). This specification will be employed for all Appendix IX and other secondary COI sample analyses, allowing post-acquisition data analysis for TICs in all samples analyzed with secondary COI methods. TICs that show up analytically in analysis for secondary COI will be considered further for reclassification as extended target analytes in subsequent phases of site work. Such consideration will take into account additional factors including environmental persistence, toxicity, and availability of reference materials for analytical calibration, among others.

Environmental Filters/ Designation of Site-Specific TICs

To determine which non-target COI substances warrant classification as site-specific TICs, ATS and MDEQ agreed to use certain environmentally relevant physical and chemical properties to assess the likelihood of these substances occurring as sediment or soil contaminants. These properties included:

- Hydrolytic instability/reactivity (unstable in contact with water, or having a very short hydrolytic half-life)
- Volatility (currently defined empirically by USEPA 8260 retention time; threshold for concern: retention time greater than bromoform)

- Aqueous solubility (threshold for concern: 1.0 g/L or less, at 20 degrees C)
- Octanol-water partition coefficient (threshold for concern: KOW approximately 3.0, or greater)

Except in continuing-source circumstances (e.g. near-plant sampling locations), substances with substantial hydrolytic reactivity and/or volatility were considered unlikely prospects as sediment and soil contaminants, given atmospheric or water-borne release pathways. Conversely, substances with hydrolytic stability, low volatility, low aqueous solubility and/or elevated octanol-water partition coefficient, were considered likely to occur in sediment or soil contaminant deposition zones.

ATS and MDEQ staff researched these physical and chemical properties for all COI coded "No USEPA Methods" in the COI database. The data were reviewed collaboratively, and non-target COI substances considered potentially useful as indicators of sediment or soil contamination, based on the properties and thresholds given above, were classified as site-specific TICs. Site-specific TICs are listed in a special section of each method TAL.

Method-Specific Target Analyte Lists

TALs were prepared for each analytical method by extracting the database based on the coding system described above. Versions of these TALs current as of this writing are given in Attachment 8. These TALs have been incorporated into the current revision of the Quality Assurance Project Plans (QAPPs). As with the COI database and QAPP documents, it is anticipated that the TALs will change as the investigations proceed. Substances may be added, deleted and/or reclassified, based on study findings. Revisions of the TALs will be reflected in formal updates to the applicable QAPP.

ATTACHMENT 1

PCOI/COI/TAL Process Flow Chart

PCOI/COI/TAL Process Flowchart

Tittabawassee River and Saginaw River Project
Midland Soils Project

Dow Master List (PCOI)

Error Check & Correct

Resolve By ATS or Dow

Case Narratives
- Redundant Entries
- Multi-Compound References
- CAS Number Reassigned
- Salts
- Biomonitoring Positives – Database Additions
- RGIS System Positives – Database Additions
- Midland Soils COI – Database Additions
- Other Database Additions

Resolve By Dow

Case Narratives
- Composition Uncertain
- Identification Conflict
- Polymers

Resolved

Add To COI Database

COI Database

Resolved

Add To COI Database

Resolved?

- Polymers (MW>5000)
- Composition Uncertain (unresolved)

Excluded References

Sort By Chemical Class

Analytical Methods Evaluation

Possible USEPA Methods

Extended Target Analytes & TICs

No USEPA Methods

- No Available Methods

Standard Methods & Target Analytes

- USEPA Appendix IX
- USEPA 8260 (Volatile Organics)
- USEPA 8270 (Semi-Volatile Organics)
- USEPA 1613B (Dioxins & Furans)
- METHOD 1613-TRP/RT (Dioxins & Furans)
- USEPA 1668A (Polychlorinated Biphenyls)
- USEPA 8041 (Phenols)
- USEPA 8081 (Chlorinated Pesticides)
- USEPA 8082 (Polychlorinated Biphenyls)
- USEPA 8121 (Chlorinated Hydrocarbons)
- USEPA 8141 (Organophosphorus Compounds)
- USEPA 8151 (Chlorinated Herbicides)
- USEPA 6010/6020 (Metals)
- USEPA 7471 (Mercury)
- Other USEPA Methods

Evaluate For Reported Site Positives
- Biomonitoring Studies
- RGIS System Monitoring

All Site Positives Included as Target Analytes

(Add As Extended Target Analyte if Necessary)

Excluded References

Evaluate Environmental Filters
- Volatility (8260 RRT > $CHBr_3$)
- Aqueous Solubility (<1 g/L)
- KOW (>3.0)

Trigger One or More Filters?

Handle As Site-Specific TIC

Pass All Filters

QAPP Target Analyte Tables
- Standard Target Analytes
- Extended Target Analytes
- Site-Specific TIC's
- Other TIC's

Excluded COI

Excluded References

PCOI/COI/TAL Technical Memo

ATS ANN ARBOR TECHNICAL SERVICES, INC.

Rev. 11/29/2006

ATTACHMENT 2

Definitions

Definitions:

PCOI: Potential Constituents of Interest

The PCOI for this project consist of those substances on the master list of chemicals submitted by The Dow Chemical Company to MDEQ on June 1, 2006, plus those substances found in biomonitoring of the Tittabawassee and Saginaw Rivers, and routine monitoring of the RGIS system. It is recognized that not all substances on the Dow master list will have significance as environmental contaminants, nor that the substances found in biomonitoring of the two rivers are necessarily related to Dow operations in Midland.

COI: Constituents of Interest

The lists of COI for this project are derived from the PCOI, and reflect those substances that are likely to have been released to the environment during the approximately 110 year period of interest for the study. Because of the large number of PCOI, the COI lists have been organized by chemical class to facilitate evaluation of physical/chemical properties and selection of analytical methods, and therefore may or may not be included on the TALs.

TAL: Target Analyte List

The Target Analyte Lists are compilations of those substances (elements or chemicals) that will be analyzed in samples from the study. TALs are method specific, and are integral components of the project QAPP and method SOPs. Together, SOPs and TALs constitute the work instructions for laboratories generating analytical data for site characterization. Because of the large number of COI and project samples, not all samples will be analyzed for all TALs.

The TAL for a specific method may contain compounds in three categories: (1) Standard Target Analytes, which are those substances for which the method was originally developed and validated; (2) Extended Target Analytes, which are specific substances of interest for which the method has been performance tested, validated, and calibrated using the same criteria as for Standard Target Analytes; and, (3) Site-Specific TICs, which are specific substances of interest for which the method is likely to useful for detection and semi-quantitation.

TIC: Tentatively Identified Compounds & Site-Specific TICs

The ion current chromatograms of multi-compound analytical methods based upon GC/MS or LC/MS (e.g. USEPA 8260 and 8270) can contain information beyond the fully-calibrated target analytes. Qualitative and quantitative information about the substances responsible for non-target peaks in such chromatograms can be included in the laboratory data reports if the peaks are handled using the procedure for Tentatively Identified Compounds (TIC) as described in USEPA Methods 8260B and 8270C (section 7.6.2 in both methods). Post-run data analysis for TICs can be optimized for site-specific COIs by identifying those compounds to the analyst as Site-Specific TICs in the TALs.

ATTACHMENT 3

Case Narratives – Resolved By ATS
Revision Date: November 27, 2006

- "Redundant entries"
- "Multi-compound references"
- "CAS number reassigned"
- "Salt references"

CASE NARRATIVE - Redundant Entries

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
433	67-72-1	Hexachloroethane	redundant entry. See Dow # 428 [67-72-1]
293	71-55-6	Chlorothene	redundant entry. See Dow # 16 [71-55-6], formerly [74552-83-3]
512	71-55-6	Methyl Chloroform	redundant entry. See Dow # 16 [71-55-6], formerly [74552-83-3]
499	74-83-9	Bromomethane	redundant entry. See Dow # 498 [74-83-9]
545	74-83-9	N/A	redundant entry. See Dow # 498 [74-83-9]
500	74-87-3	Methyl Chloride	redundant entry. See Dow # 287 [74-87-3]
284	74-97-5	Chlorobromomethane	redundant entry. See Dow # 233 [74-97-5]; formerly [83847-49-8]
515	74-97-5	Methylene Chlorobromide	redundant entry. See Dow # 233 [74-97-5]; formerly [83847-49-8]
388	75-00-3	Ethyl Chloride	redundant entry. See Dow # 285 [75-00-3]
514	75-09-2	Methylene Chloride	redundant entry. See Dow #325 [75-09-2]
161	79-06-1	Acrylamide	redundant entry. See Dow # 160 [79-06-1]
606	79-06-1	Acrlamide (Paper Filler)	DOW RESOLVED. Redundant entry See Dow #160.
157	79-34-5	Acetylene tetrachloride	redundant entry. See Dow # 17 [79-34-5]
756	79-34-5	1,1,2,2-Tetrachloroethane	redundant entry. See Dow # 17 [79-34-5]
226	80-05-7	Bisphenol-A	redundant entry. See Dow # 128 [80-05-7]
353	88-85-7	Dinitro-o-sec-butylphenol	redundant entry. See Dow # 351 [88-85-7]
357	92-52-4	Diphenyl	redundant entry. See Dow # 221 [92-52-4]
608	92-69-3	[1,1'-Biphenyl]-4-ol	redundant entry. See Dow # 682 [92-69-3]
81	93-76-5	2,4,5-Trichlorophenoxyacetic acid	redundant entry. See Dow # 65 [93-76-5]
346	93-76-5	Dimethylamine salts of 2,4-D abd 2,4,5-TP	redundant entry. See Dow # 65 [93-76-5]
68	94-75-7	2-(2,4-Dichlorophenoxy)acetic acid	redundant entry. See Dow # 67 [94-75-7]
84	94-75-7	2-(2,4-Dichlorophenoxy)acetic acid	redundant entry. See Dow # 67 [94-75-7]
86	94-75-7	2-(2,4-Dichlorophenoxy)acetic acid	redundant entry. See Dow # 67 [94-75-7]
589	95-50-1	ortho-Chlorobenzene	redundant entry. See Dow # 47 [95-50-1]
602	95-50-1	ortho-dichlorobenzene	redundant entry. See Dow # 47 [95-50-1]
590	95-57-8	ortho-chlorophenol	redundant entry. See Dow # 102 [95-57-8]
520	96-34-4	Monochloromethyl acetate	redundant entry. See Dow # 501 [96-34-4]
454	98-82-8	Isopropylbenzene	redundant entry. See Dow # 453 [98-82-8]
393	100-41-4	Ethylbenzene	redundant entry. See Dow # 386 [100-41-4]
59	100-42-5	100-42-5	DOW RESOLVED; redundant entry see Dow # 730 [100-42-5]
524	100-42-5	Monomeric Styrene	redundant entry. See Dow # 730 [100-42-5]
729	100-42-5	Styrene	DOW AFFIRMED. polymer (MW>5000) and redundant see Dow #730.
362	101-84-8	Diphenylaniline (Diphenyl oxide)	multi-compound listing for Diphenylaniline and Diphenyl oxide; AND redundant entry. See Dow # 358 [101-84-8]
370	101-84-8	DPO (5,5-diphenyloxazolidine-2,4-dione)	DOW RESOLVED.redundant entry see Dow #358 [101-84-8].

CASE NARRATIVE - Redundant Entries

736	101-84-8	Substituted phenyl ether	redundant entry. See Dow # 358 [101-84-8]
629	104-38-1	Phenolic polyglycols	DOW RESOLVED and redundant. See Dow #628.
607	106-48-9	4-chlorophenol (Para Chlo Phenol)	DOW RESOLVED and redundant. See Dow #614
401	106-93-4	1,2-Dibromoethane	redundant entry.See Dow # 46 [106-93-4]; formerly [8003-07-4]
402	106-93-4	1,2-Dibromoethane	redundant entry.See Dow # 46 [106-93-4]; formerly [8003-07-4]
403	106-93-4	Ethylene Dibromide	redundant entry.See Dow # 46 [106-93-4]; formerly [8003-07-4]
398	107-06-2	Ethylene chloride	redundant entry. See Dow # 48 [107-06-2, formerly [52399-93-6]
324	111-44-4	Dichloroethyl ether	redundant entry. See Dow # 224 [111-44-4]
407	122-99-6	Ethylene Glycol Phenyl Ether	former [56257-90-0] has been replaced with [122-99-6] for Ethylene Glycol Phenyl Ether; See Dow # 114
624	127-18-4	Perc (Perchloroethylene)	redundant entry. See Dow # 18 [127-18-4]
757	127-18-4	Tetrachloroethylene	redundant entry. See Dow # 18 [127-18-4]
568	317-83-9	2-Cyclohexyl-4,6-dinitrophenol dicyclohexylamine salt	redundant entry. See Dow # 11 [317-83-9]
130	534-52-1	2-Methyl-4,6-dinitrophenol	redundant entry. See Dow # 111 [534-52-1]
374	1321-74-0	DVB (Divinylbenzene)	redundant entry. See Dow # 367 [1321-74-0]
101	1918-16-7		redundant entry. See Dow # 684 [1918-16-7]
77	1970-40-7	2,3,5-trichloro-1H-pyridin-4-one	redundant entry see Dow # 76 [1970-40-7]
329	2921-88-2	O,O-Diethyl O-(3,5,6-trichloro-2-pyridinyl) ester phosphorothioic acid	redundant entry. See Dow # 294 [2921-88-2], formerly [39475-55-3]
406	3775-85-7	Ethylene glycol	redundant; see Dow #405
271	5017-45-8	chlorbenzol	redundant entry; See Dow #282 [108-90-7]
698	6027-02-7	Quinoline	redundant entry see Dow #436 [6027-02-7]
470	7439-95-4	Magnesium	redundant entry; see Dow #469 [7439-95-4]
472	7439-95-4	Magnesium alloy metal	redundant entry; see Dow #469 [7439-95-4]
479	7439-95-4	Magnesium metal	redundant entry. See Dow #469 [7439-95-4]
480	7439-95-4	Magnesium metal sticks	redundant entry; see Dow #469 [7439-95-4]
646	7439-95-4	Pistons and castings(Magnesium)	redundant entry; see Dow #469 [7439-95-4]
526	7647-01-0	Muriatic acid	redundant entry. See Dow # 424 [7647-01-0]
187	7664-41-7	Anhydrous Ammonia	redundant entry. See Dow #181 [7664-41-7]
53	8022-76-2	1,3-dichloroprop-1-ene	reduntant entry See Dow # 52 [8022-76-2]
54	8022-76-2	1,3-dichloropropene	reduntant entry See Dow # 52 [8022-76-2]
368	8071-51-0	2-methyl-4,6-dinitrophenol	DOW RESOLVED [8071-51-0] and [534-52-1]for chemical name 2-methyl-4,6-dinitrophenol; REDUNDANT see Dow #111 [534-52-1]
289	25167-80-0	2-Chlorophenol	DOW RESOLVED conflicting [25167-80-0] and [95-57-8] for chlorophenol; REDUNDANT; see Dow #590.
365	34590-94-8	Dipropylene glycol methyl ether	redundant entry. See Dow # 364 [34590-94-8]
519	50717-45-8	Monochlorobenzene	DOW RESOLVED [5017-45-8] and [108-90-7]for monochlorobenzene; REDUNDANT see Dow # 282 [108-90-7]
63	58769-19-0	1-methoxypropan-2-ol	redundant entry. See Dow # 62 [58769-19-0]
666	63625-56-9	Propylene glycol	DOW RESOLVED and redundant. See Dow #685

CASE NARRATIVE - Redundant Entries

689	63625-56-9	Propylene glycol	DOW RESOLVED and redundant entry. See Dow # 685 [57-55-6]; formerly [63625-56-9]
690	63625-56-9	Propylene Glycol	redundant entry. See Dow # 685 [57-55-6]; formerly [63625-56-9]
733	79637-11-9	Styrene P-100	redundant entry. See Dow # 729 [79637-11-9]
255	N/A	Carbon disulfide	redundant entry. See Dow # 254 [75-15-0]
471	N/A	Magnesium alloy	redundant entry; see Dow #469 [7439-95-4]
482	N/A	Magnesium ribbon anode	redundant entry; see Dow #469 [7439-95-4]
517	N/A	Mixture of Ethylene oxide and propylene oxide	DOW RESOLVED and redundant entry. See Dow #516
738	N/A	Sulphur	redundant entry. See Dow # 739 [81032-32-8]
382			redundant entry. See Dow # 381 [9004-57-3]
383			redundant entry. See Dow # 381 [9004-57-3]
659		Polychlorinated diphenyl ethers	DOW RESOLVED and redundant entry. See Dow# 274
660		Polychlorinated diphenyl sulfides	DOW RESOLVED and redundant entry. See Dow# 275
662		Polycyclic Aromatic Compounds	DOW RESOLVED and redundant entry. See Dow# 278
776			redundant entry. See Dow # 16 [71-55-6]
781			redundant entry. See Dow # 771 [1918-02-1]
793			redundant entry. See Dow # 22 [75-35-4]
795			redundant entry. See Dow # 467 [1330-20-7]

CASE NARRATIVE - Multi-Compound Listings

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
362	101-84-8	Diphenylaniline (Diphenyl oxide)	multi-compound listing for Diphenylaniline and Diphenyl oxide; AND redundant entry. See Dow # 358 [101-84-8]
168	102-71-6	Alkanolamines	DOW RESOLVED. Multi compound listing. Individual components are Dow #208 triethanolamine [102-71-6] and monoethanolamine [9007-33-4] Added to Master List
637	8004-13-5	Phenylbenzene	multi-compound listing. Indivudual components Dow #357 Biphenyl [92-52-4] and Dow #358 Diphenyl ether [101-84-8] are included.
85	50884-30-5	2,4-Dichlorophenol/2,4-Dichlorophenol potassium salt	multi-compound listing [120-83-2] for 2,4-Dichlorophenol added to master list
20	62587-63-7	1,1'-Biphenyl,phenoxy-, mixt. with 1,1'-oxybis[benzene]	multi-compound listing. Individual components are Dow #358 Diphenyl ether [101-84-8] and 1,1-Biphenyl, phenoxy [28984-89-6] added to Master List, are included.
252	97794-26-8	Caprylic/Capric Triglyceride - DDS 223	DOW RESOLVED.multi compound listing. Individual components are decanoic acid [334-48-5], octanoic acid [124-07-2], propane-1,2,3-triol [no CAS] all Added to Master List.
55	N/A		multi-compound listing. Individual compounds Dow #54 [8022-76-2] 1,3-dichloropropene, Dow #49 [78-87-5] 1,2-dichloropropane, 2,3-dichloropropene and 3,3-dichloropropene are added to Master List.
142	N/A	4-tert-butyl catechol + n-butyl bromide	DOW RESOLVED multi compound listing. Individual components are Dow #752 [98-29-3] 4-t-butyl catechol and [109-65-9] n-butyl bromide Added to Master List.
155	N/A	Acetylene Bromide	DOW RESOLVED. Dow #156 [79-27-6] for 1,1,2,2-Tetrabromoethane or [540-49-8] for 1,2-dibromoethene Added to Master List.
167	N/A	Acrylonitrile + Vinylidene Chloride	DOW RESOLVED. Multi-compound listing individual components are Dow # 165 [63908-52-1] acrylonitrile and Dow # 22 [75-35-4] 1,1-dichloroethene.
310	N/A	D.N. Sulphur Dust No. 10	RESOLVED. Multi compound listing. Individual components are Dow #350 [131-89-5] and Dow #739 [7704-34-9].

CASE NARRATIVE - Multi-Compound Listings

369	N/A	Dowanol EB, Triethanolamine, Dowfax 2A1, Neutronyx-600 (Dowfax 9N9), Deodorized kerosene and Versene	DOW RESOLVED. Multi compound listing. Individual components are [12626-49-2] and [26571-11-9] Added to Master List, Dow # 97 [52663-57-7] and Dow # 208 [102-71-6], and [60-00-4] Added to Master List.
427	N/A	Heptane + Ethyl Ether + Carbon dioxide	DOW RESOLVED, multi-compound listing individual components are [142-82-5] heptane, [7578-39-4] ethyl ether, [124-38-9] carbon dioxide all Added to Master List.
456	N/A	Jojoba Ester - High Internal Phase (Myristic Acid, Palmetic Acid, Oleic Acid, Eicosenic Acid, Erucic Acid, Nervonic Acid, Eicosenol, Docosenol, Tetracosenol)	DOW RESOLVED. Multi-compound listing individual components are [544-63-8] myristic acid, [66321-94-6] palmitic acid, [112-80-1] oleic acid, [506-30-9] eicosenic acid, [112-86-7] eruc+AG808ic acid, [506-37-6] nervonic acid, [629-96-9] eiconsenol, [506-51-4] tetracosenol, [30303-65-2]docosenal, all Added to Master List.
516	N/A	Mixture of Ethylene oxide and propylene oxide	DOW RESOLVED. Multi-compound listing individual components are [99932-75-9] Added to Master List ethylene oxide and Dow # 693 [75-56-9] propylene oxide.
534	N/A	Aromatic Eutectic Blend	DOW RESOLVED. Multi-compound listing individual components are Dow # 358 [101-84-8] diphenyl ether and Dow # 221 [92-52-4] diphenyl.
535	N/A	Aromatics	DOW RESOLVED. Multi compound listing individual components are Dow # 209 [71-43-2] benzene, Dow # 770 [108-88-3] toluene, Dow # 386 [100-41-4] ethylbenzene, Dow # 467 [1330-20-7] xylenes.
560	N/A	Sylvenol	DOW RESOLVED. multi-compound listing individual components are [28231-03-0] Cedrenol Added to Master List, Dow #18 [127-18-4] Tetrachloroethene, [8041-89-2] Retrol Added to Master List
627	N/A	Phenol Sulphonates	DOW RESOLVED. Multi-compound listing individual components are salts [825-90-1] parahydroxybenzene sulfonic acid and [127-82-2] zinc phenyl sulphonate. See Dow #705 (sodium) and Dow #797 (zinc).
229			Multi-compound listing. Individual compounds Dow #245 Calcium Chloride [7440-70-2], Dow #672 Potassium Chloride [7440-09-7], Dow #469 Magnesium Chloride [7439-95-4], Dow #705 Sodium Chloride [12258-98-9], Dow #230 Bromine [7726-95-6], Dow #443 Iodine [7553-56-2] are included.
258			multi-compound listing. Individual components Dow #258 Carbon tetrachloride [56-23-5], Dow #48 1,2 Dichloroethane [107-06-2]. No [CAS#] for 1,2-Dibromomethane added to Conflict ID Category

CASE NARRATIVE - Multi-Compound Listings

259			multi-compound listing. Individual components Dow #258 Carbon tetrachloride [56-23-5], Dow #404 Ethylene dichloride [52399-93-6], Dow #401 Ethylene Dibromide [106-93-4] are included.
260			multi-compound listing. Individual components Dow #258 carbon tetrachloride [56-23-5], Dow #255 Carbon Disulfide [75-15-0], Dow #498 Methyl bromide [74-83-9] are included.
302			multi-compound listing. Individual compounds Dow #301 copper [7440-50-8], Dow #204 arsenic [7440-38-2] are included.
543		Dow Mill and Bin Spray	DOW RESOLVED. multi-compound listing individual components are Dow # 417[58-89-9] gamma-BHC, [57157-84-3] Atlox 1045A Added to Mater List, Dow # 451 [78-59-1]Isophoreone, Dow # 467 [1330-20-7] xylene.
544		Dow Oven Cleaner	DOW RESOLVED. Multi-compound listing individual componests are Dow #325 [75-09-2] methylene chloride, [no CAS#] paraffin, Dow # 770[108-88-3] toluene, Dow # [9968-59-2] methocel, Dow # 491 [67-56-1] methanol, [35365-94-7] triethyl ammonium phosphate and [9007-33-4] monethanolamine Added to Master List.
566		Naptha solvent + Toluene + Dowanol EB - ethylene glycol + mono-n-butyl ether	DOW RESOLVED. multi-compound lisiting individual components are [no CAS #] Naptha solvent, Dow #770 [108-88-3]Toluene, [111-76-2] Dowanol EB added to Master List.
572			multi-element listing. Individual components Dow #571 nickel [8049-31-8], Dow #245 calcium [7440-70-2], Dow # 295 chromium [7440-47-3] are included.
594		Octyl Methoxycinnamate + Octyl Salicylate + Oxybenzone ("Sunscreens")	DOW RESOLVED. Multi-compound listing individual components are Dow #593 [5466-77-3} octyl methoxycinnamate , [118-60-5] octyl salicylalte Added to Master List, [131-57-7] oxybenzone Added to Master List.
631		Phenoxy herbicides	DOW RESOLVED. General reference to Dow #67 [94-75-7] 2,4-D, Dow # 66[93-72-1] 2,4,5-TP, Dow # 65 [93-76-5] 2,4-T.
648		Plasticizers (Phthalates)	DOW RESOLVED. General reference to Dow #225 [117-81-7 bis(2-ethylhexyl) phthalate, Dow # 355[117-84-0]di-n-octyl phthalate, Dow # 342 [131-11-3] dimethyl phthalalte.
662		Polycyclic Aromatic Compounds	DOW RESOLVED and redundant entry. See Dow# 278
783		Phosphoric acid, isodecyl diphenylester, mixt. with triphenyl phosphate	RESOLVED. Multi-compound listing individual components are[115-86-6] triphenylphospahte and [29761-21-5] isodecyldiphenylphosphate ester both Added to Master List.

CASE NARRATIVE - CAS # CHANGES

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
415	50-00-0	Formaldehyde	former [8013-13-6] has been replaced with [50-00-0] for Formaldehyde
206	50-78-2	2-(Acetyloxy) benzoic acid	former [98201-60-6] has been replaced with [50-78-2] for Aspirin (2-Acetyloxy benzoic acid)
104	51-05-8	Benzoic acid, 4-amino-, 2-(diethylamino)ethyl ester, monohydrochloride	former [8023-03-8] has been replaced with [51-05-8] for 2-diethylaminoethyl 4-aminobenzoate
758	56-23-5	Tetrachloromethane	[8068-85-7] not in registry; [56-23-5]may be correct for Tetrachloromethane
420	56-40-6	Glycine	former [87867-94-5] has been replaced with [56-40-6] for Glycine
419	56-81-5	Glycerine	former [8013-25-0] has been replaced with [56-81-5] for glycerine
685	57-55-6	Propane-1,2-diol	former [63625-56-9] has been replaced with [57-55-6] for propane-1,2-diol
636	63-91-2	L-Phenylalanine	former [3617-44-5] has been replaced with [63-91-2] for L-phenylalanine
763	64-02-8	Glycine, N,N'-1,2-ethanediylbis[N-(carboxymethyl)-, tetrasodium salt	former [8013-51-2] hasa been replaced with [64-02-8] for Glycine, N,N'-1,2-ethanediylbis(N-carboxymethyl)-tetrasodium salt
150	64-19-7	Acetic acid	former [77671-22-8] has been replaced with [64-19-7] for acetic acid
217	65-85-0	Benzoic acid	former [8013-63-6] has been replaced with [65-85-0] for benzoic acid
286	67-66-3	Chloroform	former [8013-54-5] has been replaced with [67-66-3] for chloroform
439	69-72-7	Hydroxybenzoic acid	DOW RESOLVED. [69-72-7] for hydroxybenzoic acid
434	70-30-4	2,2'-Methylenebis[3,4,6-trichloro]phenol	former [8054-98-6] has been replaced with [70-30-4] for hexachlorophene
293	71-55-6	Chlorothene	redundant entry. See Dow # 16 [71-55-6], formerly [74552-83-3]
512	71-55-6	Methyl Chloroform	redundant entry. See Dow # 16 [71-55-6], formerly [74552-83-3]
96	72-18-4	(S)-2-Amino-3-methyl-butanoic acid	former [7004-03-7] has been replaced with [72-18-4] for 2-amino-3-methyl-butanoic acidglycerine
785	73-22-3	L-Tryptophan	former [80206-30-0] has been replaced with [73-22-3] for L-Tryptophan
203	74-79-3	Arginine	former[7004-12-8] has been replaced with [50-78-2] for arginine
395	74-85-1	Ethylene	former [87701-65-3] has been replaced with [74-85-1] for ethene
408	75-21-8	Ethylene Oxide	former [99932-75-9] has been replaced with [75-21-8] for ethylene oxide

CASE NARRATIVE - CAS # CHANGES

686	79-09-4	Propionic acid	conflict [69806-86-6]not in registry; [79-09-4] for Propionic acid may be correct
391	79-11-8	Chloracetic acid, ethyl ester	DOW RESOLVED. Former [763-69-9] replaced with [79-11-8] and name changed.
555	79-11-8	chloroacetic acid, ethyl ester (Lonex)	DOW RESOLVED and redundant entry. See Dow #521
766	80-68-2	Threonine	conflict [632-20-2]not in registry; [80-68-2] for Threonine may be correct
559	87-84-3	Pentabromochlorocyclohexane (SE-651)	DOW RESOLVED. [79-11-8] for pentabromochlorocyclohexane
603	89-72-5	2-(1-Methylpropyl)phenol	former [96346-15-5] has been replaced with [89-72-5] for o-sec-butylphenol
630	92-84-2	10H-Phenothiazine	conflict [117-89-5]not in registry; [92-84-2] for Phenothiazine may be correct
524	100-42-5	Monomeric Styrene	former [79637-11-9] replaced with [100-42-5]. Redundant entry See Dow # 730 [100-42-5]
730	100-42-5	Styrene	former [79637-11-9] replaced with [100-42-5] for Styrene
729	100-42-5	Styrene	DOW AFFIRMED. polymer (MW>5000) and redundant see Dow #730. Former [79637-11-9] replaced with [100-42-5] for styrene.
584	100-75-4	N-Nitrosopiperidine	former [68374-62-9] has ben replaced with [100-75-4] for N-nitrosopiperdine
363	102-06-7	Diphenylguanidine	former [55556-10-0] has been replaced with [102-06-7] for diphenylguanidine
709	106-25-2	(z)-3,7-dimethyl-2,6-octadiene-1 ol (Secondary sesquiterpene alcohol or Nearasol)	DOW AFFIRMED. [106-25-2] for Secondary sesquiterpene alcohol
614	106-48-9	4-Chlorophenol	conflict; [1193-00-6]not in registry; [106-48-9] may be correct for 4-Chlorophenol
377	106-89-8	Chloromethyloxirane	former [13403-37-7] has been replaced with [106-89-8] for epichlorohydrin
396	106-93-4	Ethylene bromide	former [8003-07-4] replaced with [106-93-4] for Ethylene bromide
50	106-99-0	1,3-Butadiene	former [130983-70-9] replaced with [106-99-0] for 1,3-Butadiene
238	106-99-0	1,3-Butadiene	DOW RESOLVED [106-99-0] for 1,3-Butadiene
404	107-06-2	Ethylene dichloride	former [52399-93-6] replaced with [107-06-2] for Ethylene dichloride
397	107-07-3	2-Chloroethanol	former [1867-09-0] has been replaces with [107-07-3] for 2-chloroethanol
165	107-13-1	Acrylonitrile	former [63908-52-1] has been replaced with [107-13-1] for Acrylonitrile
691	107-98-2	Propylene Glycol Methyl Ether	DOW RESOLVED. former [89024-56-6] for Propylene glycol methyl ether has been replaced with [107-98-2]
626	108-95-2	Phenol	former [8002-07-1] has been replaced with [108-95-2] for phenol
116	109-06-8	2-Methylpyridine	former [82005-07-0] has been replaced with [109-06-8] for 2-methylpyridine
570	110-54-3	N-Hexane	former [8031-34-3] has been replaced with [110-54-3] for N-Hexane
644	110-85-0	Piperazine	former [81546-15-8] replaced with [110-85-0] for Piperazine

CASE NARRATIVE - CAS # CHANGES

336	110-97-4	1,1'-Iminobis-2-propanol	former [1335-54-2] has been replaced with [110-97-4] for 1,1'-Iminobis-2-propanol
328	111-42-2	2,2'-Iminobisethanol	former [8033-73-6] has been replaced with [111-42-2] for Diethanolamine
333	111-46-6	Diethylene Glycol	former [4669-26-5] has been replaced with [111-46-6] for Diethylene Glycol
779	112-27-6	Triethylene glycol	former [676-18-6] has been replaced with [112-27-6] for Triethylene glycol
334	112-34-5	Diethylene glycol butyl ether	former [210818-08-9] has been replaced with [112-34-5] for Diethylene glycol butyl ether
687	115-07-1	Propylene	former [676-63-1] has been replaced with [115-07-1] for Propylene
198	118-92-3	2-Aminobenzoic acid	former [80206-34-4] has been replaced with [118-92-3] for 2-Aminobenzoic acid
509	119-36-8	Methyl salicylate (Oil of wintergreen)	former [8024-54-2] has been replaced with [119-36-8] for Methyl salicylate
356	120-07-0	Diethoxy Aniline (Dioxy Diethyl Aniline)	DOW RESOLVED. [120-07-0] for diethoxy aniline.
455	120-58-1	Isosafrole	former [191281-03-5] has been replaced with [120-58-1] for Isosafrole
263	120-80-9	1,2-Benzenediol	former [37349-32-9] has been replaced with [120-80-9] for Catechol
787	121-33-5	Vanillin	former [8014-42-4] has been replaced with [121-33-5] for Vanillin
114	122-99-6	2-phenoxyethanol	former [56257-90-0] has been replaced with [122-99-6] for 2-phenoxyphenol
407	122-99-6	Ethylene Glycol Phenyl Ether	former [56257-90-0] has been replaced with [122-99-6] for Ethylene Glycol Phenyl Ether; See Dow # 114
438	123-31-9	Hydroquinone	former [8027-02-9] has been replaced with [23-31-9] for Hydroquinone
696	129-00-0	Pyrene	former [76165-23-6] has been replaced with [129-00-0] for pyrene
64	134-32-7	1-Naphthalenamine	former [25168-10-9] not in registry; [134-32[7] may be correct
678	140-92-1	Potassium Isopropyl Xanthate	former [41256-16-0] replaced with [140-92-1] for Potassium Isopropyl Xanthate
239	141-32-2	Butyl acrylate	former [220713-31-5] has been replaced with [141-32-2] for Butyl acrylate
380	141-43-5	2-Aminoethanol	former [9007-33-4] has been replaced with [141-43-5] for Ethanolamine
645	142-64-3	Dihydrochloride piperazine	former [8049-00-1] has been replaced with [142-64-3] for Piperazine dihydrochloride
268	107-04-0	1-bromo-2-chloroethane (Chlor Ethylene Bromide)	DOW RESOLVED. [107-04-0] for 1-bromo-2-chloroethane (chlor ethylene bromide).
802	299-85-4	o-(2,4-dichlorophenyl + o-methylisopropyl phosphoramidothioate) (Zytron)	DOW RESOLVED. [299-85-4] for Zytron+o-(2,4-dichlorophenyl + o-methyl isopropylphosphoromidothioate)
532	309-00-2	Aldrin - 1,2,3,4,10,10-Xexachloro-1,4,4a,5,8,8a-hexahydro-(1.alpha.,4.alpha.,4a.beta.,5.alpha.,8.alpha.,8a.beta.)-1,4:5,8-dimethanonaphthalene	former [6851-31-6] for Aldrin has been replaced with [309-00-2]

CASE NARRATIVE - CAS # CHANGES

449	465-73-6	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-(1R,4S,4aS,5R,8S,8aR)-rel-1,4:5,8-dimethanonaphthalene	conflicting [370-14-9] not in registry;[463-73-6] may be correct for Isodrin.
527	505-60-2	1,1'-Thiobis[2-chloro]ethane	former [69020-37-7] has been replaced with [505-60-2] for Mustard gas
103	598-78-7	2-Chloropropionic acid	former [62138-52-7] has been replaced with [598-78-7] for 2-Chloropropionic acid
753	630-25-1	Tetrachlordibromoethane	DOW RESOLVED. [630-25-1] for Tetrachlordibromoethane
549	1031-07-8	6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide-6,9-methano-2,4,3-benzodioxathiepin	former [87695-43-0] replaced with [1031-07-8] for endosulfan sulfate
796	1300-73-8	Xylidene with mixed isomers	DOW RESOLVED. [1300-73-8] for Xylidene with mixed isomers.
367	1321-74-0	Divinylbenzene	former[61804-50-0] hes been replaced with [1321-74-0] for divinylbenzene
292	1331-28-8	2-Chloroethenylbenzene	former [8063-96-5] has been replaced with [1331-28-8] for Chlorostyrene (2-Chloroethylbenzene)
747	1406-05-9	Synthetic Penicillin Medium	DOW RESOLVED. [1406-05-9] for Synthetic Penicillin Medium
69	2008-39-1	Acetic acid, (2,4-dichlorophenoxy)-, compd. with N-methylmethanamine	former [64296-19-1] has been replaced with [2008-39-1] for 2-(2,4-dichlorophenoxy)acetic acid; N-methylmethanamine
556	2385-85-5	1,1a,2,2,3,3a,4,5,5,5a,5b,6-Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta[cd]pentalene	former [56449-78-6] replaced with [2385-85-5] for Mirex
673	2720-73-2	Potassium Amyl Xanthate	DOW RESOLVED. [2720-73-2] for Potassium Amyl Xanthate
329	2921-88-2	O,O-Diethyl O-(3,5,6-trichloro-2-pyridinyl) ester phosphorothioic acid	redundant entry. See Dow # 294 [2921-88-2], formerly [39475-55-3]
754	3228-99-7	1,3-dichloro-2,2-bis(chloromethyl)propane (Tetrachloride)	DOW RESOLVED. [3228-99-7] for tetrachloride
745	3775-85-7	Super Coolant Anti-freeze (Ethylene glycol)	DOW RESOLVED. [3775-85-7] for Super Coolant anti-freeze (Ethylene glycol)
643	3819-00-9	Piperacetazine	DOW RESOLVED. [3819-00-9] for piperacetazine
523	6168-72-5	2-Amino-1-propanol	former [78-91-1] has been replaced with [6168-72-5] for Monoisopropanolamine
571	7440-02-0	Nickel	former [8049-31-8] has been replaced with [7440-02-0] for nickel
715	7440-23-5	Sodium	former [12258-98-9] not in registry; [7440-23-5] may be correct for sodium
764	7440-28-0	Thallium	former [82870-81-3] hasa been replaced with [7440-28-0] for thallium
742	7446-09-5	Sulfur dioxide	former [89125-89-3] replaced with [7446-09-5] Sulphur Dioxide
623	7607-99-0	Pentasol Xanthate	DOW RESOLVED. [7607-99-0] for Pentasol Xanathate
181	7664-41-7	Ammonia	former [8007-57-6] has been replaced with [7664-41-7] for ammonia
574	7697-37-2	Nitric acid	former [78989-43-2] has been replacec with [7697-37-2] for nitric acid
739	7704-34-9	Sulfur	former [81032-32-8] replaced with [7704-34-9] for Sulfur

CASE NARRATIVE - CAS # CHANGES

422	7782-42-5	Graphite electrodes	former [87934-03-0] has been replaced with [7782-42-5] for graphite electrodes
710	7782-49-2	Selenium	former [95788-45-7] has bben replaced with [7782-49-2] for selenium
772	8001-35-2	Toxaphene	former [8022-04-6] has been replaced with [8001-35-2] for toxaphene
163	9003-04-7	2-Propenoic acid, homopolymer, sodium salt	DOW AFFIRMED. polymer (MW>5000) AND former [95077-68-2] has been replaced with [9003-04-7] for Acrylic acid + Sodium Acylate (2-Propenoic acid, homopolymer, sodium salt)
595	9082-06-8	Polyacrylamide (Oil Emulsion)	DOW RESOLVED. [9082-06-8] for polyacylamide
641	10025-87-3	Phosphoric trichloride	former [39380-77-3] has been replaced with [10025-87-3] for Phosphorus oxychloride (Phosphoric trichloride)
437	10035-10-6	Hydrobromic acid	former [62140-56-1] has been replaced with [10035-10-6] for hydrobromic acid
741	10545-99-0	Sulphur Dichloride	former [39461-36-4] replaced with [10545-99-0] Sulphur Dichloride
318	13552-09-5	DHC (2-aminooctadecane-1,3-diol)	DOW RESOLVED. Former [764-22-7] replaced with [13552-09-5].
313	13654-09-6	Decabromobiphenyl	former [39282-95-6] has been replaced with [13654-09-6] for Decabromobiphenyl
347	14484-64-1	Tris(dimethylcarbamodithioato-.kappa.S,.kappa.S')-, (OC-6-11) iron	former [64070-92-4] has been replaced with [14484-64-1] for Dimethylaminomethannedithioate;iron(+3) cation
546	24556-65-8	3,4,5-tribromosalicylanide	DOW RESOLVED. [24556-65-8] for 3,4,5-tribromosalicylanide
722	25155-30-0	Sodium dodecylbenzene sulfonate	DOW RESOLVED. [25155-30-0] for sodium dodecylbenzene sulfonate
664	25322-68-3	Polyethylene glycol	DOW RESOLVED. [25322-68-3] for polyethylene glycol
784	25498-49-1	Tripropylene Glycol Methyl Ether	former [30373-82-1] has been replaced with [25498-49-1] for Tripropylene Glycol Methyl Ether
548	33213-65-9	6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.alpha.,6.beta.,9.beta.,9a.alpha.)-6,9-methano-2,4,3-benzodioxathiepin	former [891-86-1] for Endosulfan II replaced with [33213-65-9]
562	35884-77-6	Xylyl bromide (Y-11)	DOW RESOLVED. [35884-77-6] for Xylyl bromide
773	49690-94-0	Tribromophenyl ether	DOW RESOLVED. [49690-94-0] for tribromodiphenylether
412	55860-53-2	Flotation agent (Isobutyl ethyl thionocarbamate)	DOW RESOLVED. [55860-53-2] for isobutyl ethyl thionocarbamate.
692	57018-52-7	Propylene Glycol n-Butyl Ether (Dowanol)	DOW RESOLVED. [57018-52-7] for Propylene glycol n-Butyl ether
231	62140-56-1	Hydrobromic acid (Bromine Acid)	DOW RESOLVED. [62140-56-1] for hydrobromic acid.
765	63148-67-4	Polysulfide rubber compounds (Thiokol)	DOW RESOLVED. [63148-67-4] for Thiokol
375	63908-52-1	Emulsion - Finishing (primary component - acrylonitrile)	DOW RESOLVED. [63908-52-1] for acrylonitrile, primary compnent
423	69806-40-2	Haloxyfop-methyl	former [86510-80-7] for Haloxyfop-methyl replaced with [69806-40-2]
335	89698-92-0	Toluene diisocyanate	DOW RESOLVED. [89698-92-0] for toluene diisocyanate

CASE NARRATIVE - CAS # CHANGES

665	96956-24-0	Polyethleneimine	DOW RESOLVED. [96956-24-0] for polyethleneimine
596	104053-06-7	Oligonucleotide (Nucleotide - RNA or DNA)	DOW RESOLVED. [104053-06-7] for Nucleotide
317	166524-65-8	DFEP (2-ethoxy-4,6-difluropyrimidine)	DOW RESOLVED. [166524-65-8] for 2-ethoxy-4,6-difluropyrimidine (DFEP)
627	N/A	Phenol Sulphonates	DOW RESOLVED. Multi-compound listing individual components are salts [825-90-1] parahydroxybenzene sulfonic acid and [127-82-2] zinc phenyl sulphonate. See Dow #705 (sodium) and Dow #797 (zinc).
594		Octyl Methoxycinnamate + Octyl Salicylate + Oxybenzone ("Sunscreens")	DOW RESOLVED. Multi-compound listing individual components are Dow #593 [5466-77-3} octyl methoxycinnamate , [118-60-5] octyl salicylalte Added to Master List, [131-57-7] oxybenzone Added to Master List.
648		Plasticizers (Phthalates)	DOW RESOLVED. General reference to Dow #225 [117-81-7 bis(2-ethylhexyl) phthalate, Dow # 355[117-84-0]di-n-octyl phthalate, Dow # 342 [131-11-3] dimethyl phthalalte.
783		Phosphoric acid, isodecyl diphenylester, mixt. with triphenyl phosphate	DOW RESOLVED. Multi-compound listing individual components are[115-86-6] triphenylphospahte and [29761-21-5] isodecyldiphenylphosphate ester both Added to Master List.

CASE NARRATIVE - Salts

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
726	650-51-1	Trichlorosodium salt acetic acid	salt; see Dow #705 (sodium) [12258-98-9]
786	1314-62-1	Vanadium oxide	salt; [7440-62-2] Vanadium Added
743	7487-88-9	Sulphuric acid, magnesium salt	DOW RESOLVED; salt see Dow# 469 (magnesium) [7439-95-4]
744	7681-38-1	Sulphuric Acid, sodium salt	DOW RESOLVED; salt see Dow# 705 (sodium) [12258-98-9]
719	7789-38-0	Bromic acid, sodium salt	salt; see Dow #705 (sodium) [12258-98-9]
675	7790-93-4	Chloric acid	salt; see Dow #672 (potassium) [7440-09-7]
798	16485-55-5	Zincate(3-), pentachlorotriammonium	salt; see Dow #797 (zinc) [7440-66-6]
483	18917-89-0	Bis[2-(hydroxy.kappa.O)benzoato-.kapp.O]-,(T-4)r	salt; see Dow #469 (magnesium) [7439-95-4]
627	N/A	Phenol Sulphonates	DOW RESOLVED. Multi-compound listing individual components are salts [825-90-1] parahydroxybenzene sulfonic acid and [127-82-2] zinc phenyl sulphonate. See Dow #705 (sodium) and Dow #797 (zinc).
178			salt; see Dow #176 (aluminum) [7429-90-5]
179			salt; see Dow #176 (aluminum) [7429-90-5]
182			salt; see Dow #181 (ammonia) [8007-57-6]
183			salt; see Dow #181 (ammonia) [8007-57-6]
184			salt; see Dow #181 (aluminum) [80007-57-6]
185			salt; see (benzoic acid) [69-72-7] Added to Master List.
186			salt; see Dow #181 (ammonia) [8007-57-6]
188			salt; see Dow #469 (magnesium) [7439-95-4]
189			salt; see Dow #705, #150 (sodium, acetic acid) [12258-98-9],[64-19-7 former 77671-22-8]
205			salt; see Dow #204, #301 (arsenic, copper) [7440-38-2], [7440-50-8]
246			salt; see Dow #245 (calcium) [7440-70-2]
247			salt; see Dow #245,(calcium) [7440-70-2] and benzoic acid [65-85-0] Added to Master List.
248			salt; see Dow #245 (calcium) [7440-70-2]
249			salt; see Dow #245 (calcium) [7440-70-2]
250			salt; see Dow #245 (calcium) [7440-70-2]
251			salt; see Dow #245 (calcium) [7440-70-2]
264			salt; see Dow #705 (sodium) [12258-98-9]
267			salt; see Dow #245 (calcium) [7440-70-2]
371			salt; see Dow 204, #457 (arsenic, lead) [7440-38-2, 7439-92-1]
372			salt; see Dow #245 (calcium) [7440-70-2]
411			salt; see Dow #445 (iron) [7439-89-6]
416			salt; see Dow #764 (thallium) [82870-81-3]
458			salt; see Dow #204, #457 (arsenic, lead) [7440-38-2, 7439-92-1]
459			salt; see Dow #457 (lead) [7439-92-1]
460			salt; see Dow #457 (lead) [7439-92-1]
461			salt; see Dow #457 (lead) [7439-92-1]
462			salt; see Dow #245 (calcium) [7440-70-2]
463			salt; see Dow #245 (calcium) [7440-70-2]
464			salt; see Dow #245 (calcium) [7440-70-2]
468			salt; see Dow #469 (magnesium) [7439-95-4]

CASE NARRATIVE - Salts

473			salt; see Dow #469 (magnesium) [7439-95-4]
474			salt; see Dow #469 (magnesium) [7439-95-4]
475			salt; see Dow #469 (magnesium) [7439-95-4]
476			salt; see Dow #469 (magnesium) [7439-95-4]
477			salt; see Dow #469 (magnesium) [7439-95-4]
478			salt; see Dow #469 (magnesium) [7439-95-4]
481			salt; see Dow #469 (magnesium) [7439-95-4]
484			salt; see Dow #469 (magnesium) [7439-95-4]
487			salt; see Dow #486 (manganese) [7439-96-5]
538		Zinc salt of 2,4,5 -trichlorophenol (Dow 9-B)	DOW RESOLVED. salt; see Dow #8[95-95-4] 2,4,5-trichlorophenol
573		Nitrate Compounds	DOW RESOLVED. Salt see Dow #
671			salt; see Dow #672 (potassium) [7440-09-7]
674			salt; see Dow #672 (potassium) [7440-09-7]
702			salt; see Dow #181 (ammonia) [8007-57-6]
704			salt; see Dow #705 (sodium) [12258-98-9], benzoic acid [69-72-7] Added to Master List.
705			salt; see Dow #705 (sodium) [12258-98-9]
714			salt; see Dow #245 (calcium) [7440-70-2]
716			salt; see Dow #705, #150 (sodium, acetic acid) [12258-98-9], [64-19-7 former 77671-22-8]
717			salt; see Dow #204, #705 (arsenic, sodium) [7440-38-2, 12258-98-9]
718			salt; see Dow #705 (sodium) [12258-98-9], benzoic acid 69-72-7] Added to Master List.
720			salt; see Dow #705 (sodium) [12258-98-9]
721			salt; see Dow #705 (sodium) [12258-98-9]
724			salt; see Dow #705 (sodium) [12258-98-9]
725			salt; see Dow #705 (sodium) [12258-98-9]
768			salt; see (titanium) [7440-32-6] Added to Master List.
769			salt; see (titanium) [7440-32-6] Added to Master List.
799			salt; see Dow #797 (zinc) [7440-66-6]
800			salt; see Dow #797 (zinc) [7440-66-6]
801			salt; see Dow #797, #295 (zinc, chromium) [7440-66-6, 7440-47-3]

ATTACHMENT 4

Case Narratives – Resolved or Affirmed by Dow
Revision Date: November 27, 2006

- "Composition Uncertain"
- "ID Conflicts" (between CAS and chemical name)
- "Polymers" (MW > 5000 Daltons)

CASE NARRATIVE - Composition Uncertain

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
237	N/A	Bromozones	DOW AFFIRMED. composition uncertain for chemical name Bromozones (very old product)
242	N/A	By-products of brominated biphenyl ethers	DOW AFFIRMED. composition uncertain for chemical name By-products of brominated diphenyl ethers
253	N/A	Carbamoyl Sarcosine (CMS) or 2-(carbomyl-methyl-ami	DOW AFFIRMED. no [CAS] for chemical name Carbamoyl Sarcosine or 2-(carbonyl-methyl-amino)acetic acid
265	N/A	Cedambrette	DOW AFFIRMED. composition uncertain for chemical name Cedambrette (very old product)
297	N/A	Ciba blue (brominated indigo)	DOW AFFIRMED. composition uncertain for chemical name Ciba blue
312	N/A	DBR (N-[4-(5-dimethylaminonaphthalen-1-yl)sulfonylaminobutyl]adamantane-1-carboxamide)	DOW AFFIRMED. composition uncertain for chemical name DBR (N-[4-(5-dimethylaminoaphthalenyl)sulfonylaminobutyl]adamante-1-c
373	N/A	DTRP - 1,2,3,4-tetrahydro-(1-phenylethyl)napthalene)	DOW AFFIRMED. composition uncertain (no CAS #) for chemical name DTRP - 1,2,3,4-tetrahydro-(1-phenylethyl)napthalene)
410	N/A	F Reagant, Potassium Furfuryl Xanthate	DOW AFFIRMED. composition uncertain for chemical name F Reagent, Potassium Furfuryl Xanthate
418	N/A	Ginger root, Boric Acid, Soluble Oil	DOW AFFIRMED. composition uncertain for chemical name Ginger root, boric acid, soluble oil
243			DOW AFFIRMED. composition uncertain for chemical name By-products of phenol process
274			DOW AFFIRMED. composition uncertain for chemical name Chlorinated Diphenyloxide
275			DOW AFFIRMED. composition uncertain for chemical name Chlorinated Diphenylsulfide
276			DOW AFFIRMED. composition uncertain for chemical name Chlorinated Heterocycles like chlorinated carbazoles, acridin, polychlorinated dibenzophenes
277			DOW AFFIRMED. composition uncertain for chemical name Chlorinated Indene
278			DOW AFFIRMED. composition uncertain for chemical name Chlorinated PAH's (3-5 rings)
279			DOW AFFIRMED. composition uncertain for chemical name Chlorinated Phenols, cresols
553		N/A	DOW AFFIRMED. composition uncertain for chemical name Gardanthrol
561		N/A	DOW AFFIRMED. composition uncertain for chemical name Sylviola
609		Paraffins + Bentonite + Pale Linsee Fatty Acid + Ammonia + Water	DOW AFFIRMED. composition uncertain for chemical name Paraffins +Bentonite + Pale Linsee fatty acid + ammonia + water
658			DOW RESOLVED. General reference to Dow # 655, Dow #533, Dow #657, Dow #651, Dow #652, Dow #654, Dow# 656, Dow #653.

CASE NARRATIVE - Composition Uncertain

661			DOW AFFIRMED. composition uncertain for chemical name Polychlorinated naphthalenes
737		Sulphonated base oil	DOW AFFIRMED. composition uncertain for chemical name Sulphonated base oil
749		t-butylsalol	DOW AFFIRMED. composition uncertain for chemical name t-butylsalol
755		Tetrachlorodinuthane	DOW AFFIRMED. Composition uncertain for Tetrachlorodiuthane.
788		Velvetine	DOW AFFIRMED.composition uncertain for chemical name Velvetine

CASE NARRATIVE - ID Conflict

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
758	56-23-5	Tetrachloromethane	[8068-85-7] not in registry; [56-23-5]may be correct for Tetrachloromethane
686	79-09-4	Propionic acid	conflict [69806-86-6]not in registry; [79-09-4] for Propionic acid may be correct
766	80-68-2	Threonine	conflict [632-20-2]not in registry; [80-68-2] for Threonine may be correct
630	92-84-2	10H-Phenothiazine	conflict [117-89-5]not in registry; [92-84-2] for Phenothiazine may be correct
614	106-48-9	4-Chlorophenol	conflict; [1193-00-6]not in registry; [106-48-9] may be correct for 4-Chlorophenol
292	1331-28-8	2-Chloroethenylbenzene	former [8063-96-5] has been replaced with [1331-28-8] for Chlorostyrene (2-Chloroethylbenzene)
715	7440-23-5	Sodium	former [12258-98-9] not in registry; [7440-23-5] may be correct for sodium
135	N/A	4-chloro-2-nitrophenylphenylether; "Nitrophene"	conflict; no [CAS #] for chemical name 4-chloro-2-nitrophenylphenylether
208	N/A	B-chloro-B'-(2,4,6-trichlorophenoxy)-diethyl ether	DOW RESOLVED no [CAS #] for chemical name B-chloro-B'-(2,4,6-trichlorophenoxy)-diethyl ether. Experiemental chemical, not produced.
316	N/A	DFBA (2-[1-[3,5-diflurorphenyl)methoxy]-6-imino-purin-9-yl]-5-hydroxymethyl)oxolane-3,4-diol)	conflict; no [CAS #] for chemical name DFBA (2-[1-[3,5-diflurorphenyl)methoxy]-6-imino-purin-9-yl]-5-hydroxymethyl)oxolane-3,4-diol)
679	N/A	PPH((1-amino-2-phenyl-ethyl)phosphinic acid)	conflict; no [CAS #] for chemical name PPH((1-amino-2-phenyl-ethyl)phosphinic acid)
258			multi-compound listing. Individual components Dow #258 Carbon tetrachloride [56-23-5], Dow #48 1,2 Dichloroethane [107-06-2]. No [CAS#] for 1,2-Dibromomethane added to Conflict ID Category

CASE NARRATIVE - Polymers

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
446	100-42-5	IRPS (Ignition-resistant polystyrene)	DOW AFFIRMED. polymer (MW>5000)
729	100-42-5	Styrene	DOW AFFIRMED. polymer (MW>5000) and redundant see Dow #730.
163	9003-04-7	2-Propenoic acid, homopolymer, sodium salt	DOW AFFIRMED. polymer (MW>5000) AND former [95077-68-2] has been replaced with [9003-04-7] for Acrylic acid + Sodium Acylate (2-Propenoic acid, homopolymer, sodium salt)
378	28064-14-4	Epoxy resin (epichlorohydrin + phenol-formaldehyde novolac)	DOW AFFIRMED. polymer (MW>5000)
23	N/A	1,1'-isopropylidene bis (p-phenyleneoxy) di-2-pr+C32opanol or 2,2-bis(p-(2-hydroxypropxy))-phenyl propane	DOW AFFIRMED. polymer (MW>5000)
376	N/A	Emulsion - HGABS	DOW AFFIRMED. polymer (MW>5000)
409	N/A	Ethylene/propylene/diene monomer (EPDM)	DOW AFFIRMED. polymer (MW>5000)
444	N/A	Ion exchange resins	DOW AFFIRMED. polymer (MW>5000)
780	N/A	Triethylene Glycol -main ingredient + Methyl Ether + 4,4'-(1-Methylethylidene)bisphenol + 2,2',2''-Nitrilotrisethanol + 1-Amino-2-propanol + Voranol CP-3322	DOW RESOLVED. Multi-compound listing individual componenets are [112-35-6] Triethylene glycol Methyl Ether, [25068-38-6] 4,4' (1-Methyltheylidene)bisphenol, [24794-58-9] 2,2,2'-Nitrilotrisethanol, [78-96-6] Amino-2-propanol, [no CAS] Voranol CP-3322, all Added to Master List.
124			DOW AFFIRMED. polymer (MW>5000)
164			DOW AFFIRMED. polymer (MW>5000)
166			DOW AFFIRMED. polymer (MW>5000)
177			DOW AFFIRMED. polymer (MW>5000)
180			DOW AFFIRMED. polymer (MW>5000)
192			DOW AFFIRMED. polymer (MW>5000)
193			DOW AFFIRMED. polymer (MW>5000)
194			DOW AFFIRMED. polymer (MW>5000)
195			DOW AFFIRMED. polymer (MW>5000)
196			DOW AFFIRMED. polymer (MW>5000)
201			DOW AFFIRMED. polymer (MW>5000)
262			DOW AFFIRMED. polymer (MW>5000)
266			DOW AFFIRMED. polymer (MW uncertain; very old product)
343			DOW AFFIRMED. polymer (MW>5000)
381			DOW AFFIRMED. polymer (MW>5000)
384			DOW AFFIRMED. polymer (MW>5000)
394			DOW AFFIRMED. polymer (MW>5000)
466			DOW AFFIRMED. polymer (MW>5000)
494			DOW AFFIRMED. polymer (MW>5000)
511			DOW AFFIRMED. polymer (MW>5000)
539		N/A	DOW AFFIRMED. polymer (MW>5000)

CASE NARRATIVE - Polymers

540		N/A	DOW AFFIRMED. polymer (MW>5000)
541		N/A	DOW AFFIRMED. polymer (MW>5000)
542		N/A	DOW AFFIRMED. polymer (MW>5000)
552			DOW AFFIRMED. polymer (MW>5000)
569			DOW AFFIRMED. polymer (MW>5000)
647		Plastic	DOW AFFIRMED. polymer (MW>5000)
663			DOW AFFIRMED. polymer (MW>5000)
667			DOW AFFIRMED. polymer (MW>5000)
668			DOW AFFIRMED. polymer (MW>5000)
669			DOW AFFIRMED. polymer (MW>5000)
670			DOW AFFIRMED. polymer (MW>5000)
683			DOW AFFIRMED. polymer (MW>5000)
695			DOW AFFIRMED. polymer (MW>5000)
706			DOW AFFIRMED. polymer (MW>5000)
707			DOW AFFIRMED. polymer (MW>5000)
711		Silicon compounds	DOW AFFIRMED. polymer (MW>5000)
712		Silicon compounds	DOW AFFIRMED. polymer (MW>5000)
727			DOW AFFIRMED. polymer (MW>5000)
731		Styrene + Acrylonitrile	DOW AFFIRMED. polymer (MW>5000)
732			DOW AFFIRMED. polymer (MW>5000)
734			DOW AFFIRMED. polymer (MW>5000)
735			DOW AFFIRMED. polymer (MW>5000)
782			DOW AFFIRMED. polymer (MW>5000)

ATTACHMENT 5

Case Narrative – Database Additions
Revision Date: November 27, 2006

- "Case Narrative Additions"
- "Biomonitoring Positives"
- "RGIS System Positives"
- "Midland Soils COI"

CASE NARRATIVE - Database Additions

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
Added	60-00-4	Versene (sodium EDTA)	See Dow #369; [60-00-4] for Versene
Added	69-72-7	Benzoic acid, 2-hydroxy	salt, See Dow #185 and #704 Added to Master List.
Added	75-69-4	trichlorofluoromethane	Appendix IX.
Added	78-88-6	2,3-Dichloropropene	[78-88-6] 2,3-Dichloropropene
Added	78-96-6	Amino-2-propanol	See Dow #780; [78-96-6] for amino-2-propanol
Added	107-12-0	propionitrile	Appendix IX. RGIS.
Added	108-05-4	vinyl acetate	Appendix IX.
Added	109-65-9	n-butyl bromide	See Dow #142; [109-65-9] n-butyl bromide
Added	110-57-6	trans-1,4-dichloro-2-butene	Appendix IX. RGIS.
Added	111-76-2	2-butoxy ethanol	See Dow #566; [111-76-2] for 2-butoxy ethanol
Added	112-35-6	Triethylene glycol methyl ether	See Dow #780; [112-35-6] for triethylenen glycol methyl ether
Added	112-80-1	Oleic acid	See Dow #456; [112-80-1] for Oleic acid
Added	112-86-7	Erusic acid	See Dow #456; [112-86-7] for Erusic acid
Added	115-86-6	Triphenylphospahte	See Dow #783; [115-86-6] for triphenylphospahte
Added	118-60-5	Octyl Salicylate	See Dow # 594; [118-60-5] for octyl salicylate
Added	119-93-7	3,3[min]dimethylbenzidine	Appendix IX.
Added	120-83-2	2,4-Dichlorophenol	RGIS. [120-83-2] 2,4-Dichlorophenol
Added	124-07-2	Octanoic acid	See Dow #252; [124-07-2] for octanoic acid.
Added	124-38-9	Carbon dioxide	See Dow #427; [124-38-9] for carbon dioxide
Added	131-57-7	Oxybenzone	See Dow # 594; [131-57-7] for oxybenzone
Added	142-82-5	Heptane	See Dow #427; [142-82-5] for heptane
Added	156-59-2	cis-1,2-Dichloroethene	RGIS. [156-59-2] cis-1,2-Dichloroethene
Added	156-60-5	trans-1,2-dichloroethene	Appendix IX. RGIS.
Added	334-48-5	Decanoic acid	See Dow #252; [334-48-5] for decanoic acid.
Added	506-30-9	Eicosinic acid	See Dow #456; [506-30-9] for Eicosinic acid
Added	506-37-6	Nervonic acid	See Dow #456; [506-37-6] for Nervonic acid
Added	506-51-4	Tetraconsenol	See Dow #456; [506-51-4] for Tetraconsinol
Added	540-49-8	1,2-Dibromoethene	See Dow #155; [540-49-8] for 1,2-Dibromoethene
Added	544-63-8	Myristic acid	See Dow #456; [544-63-8] for Myristic acid
Added	563-57-5	3,3-Dichloropropene	[563-57-5] 3,3-Dichloropropene
Added	629-96-9	Eicosenol	See Dow #456; [629-96-9] for Eiconsenol
Added	2432-11-3	2,6-Diphenyl Phenol	RGIS.
Added	5103-73-1	Cis Nonachlor - 1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-(1.alpha.,2.alpha.,3.alpha.,3a.alpha., 4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene	[5103-73-1] Cis Nonachlor
Added	7440-32-6	Titanium	[7440-32-6] Titanium
Added	7440-62-2	Vanadium	RGIS. [7440-62-2] Vanadium

CASE NARRATIVE - Database Additions

Added	7578-39-4	Ethyl ether	See Dow #427; [7578-39-4] for ethyl ether
Added	7783-06-4	Sulfide	RGIS.
Added	8041-89-2	Retrol	See Dow #560; [8041-89-2] for Retrol
Added	8063-96-5	Chlorostyrene	[8063-96-5] Chlorostyrene
Added	9007-33-4	Monoethanolamine	See Dow #208; [9007-33-4] monethanolamine
Added	10061-02-6	trans-1,3-Dichloropropene	[10061-02-6] trans-1,3-Dichloropropene
Added	12626-49-2	Dowfax 2A1	See Dow #369; [12626-49-2] for Dowfax 2A1
Added	18496-25-8	sulfide	Appendix IX.
Added	23950-58-5	pronnamide	Appendix IX.
Added	24794-58-9	2,2',2''-nitrilotrisethanol	See Dow #780; [112-35-6] for triethylenen glycol methyl ether
Added	25068-38-6	4,4'-(1-Methylethylidene)bisphenol	See Dow #780; [25068-38-6] for 4,4'-(1-Methyiethylidene bisphenol
Added	26571-11-9	Dowfax 9N9	See Dow #369; [26571-11-9] for Dowfax 9N9
Added	27178-34-3	Tertbutyl Phenol	RGIS.
Added	27304-13-8	2,3,4,5,6,6a,7,7-Octachloro-1a,1b,5,5a,6,6a-hexahydro-, (1a.alpha.,1b.beta.,2.alpha.,5.alpha.,5a.beta.,6.beta.,6a.alpha.)- 2,5-methano-2H-indeno[1,2-b]oxirene	[27304-13-8] Oxychlordane
Added	28231-03-0	Cedrenol	See Dow #560; [28231-03-0] for Cedrenol
Added	28984-89-6	1,1'-Biphenyl, phenoxy-	multi-compound listing. See Dow #20 [62587-63-7] Added to Master List.
Added	29082-74-4	Octachlorostyyrene - Pentachloro(trichloroethenyl)benzene	[29082-74-4] Octachlorostyrene
Added	29761-21-5	Isodecyldiphenylphospahte ester	See Dow #783; [29761-21-5] for isodecyldiphenylphosphate ester
Added	30303-65-2	Docosenal	See Dow #456; [30303-65-2] for Docosenol+AG574
Added	35365-94-7	triethylammonium phosphate	See Dow #544; [35365-94-7] for triethylammonium phosphate
Added	39765-80-5	1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-, (1.alpha.,2.beta.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene	[39765-80-5] trans Nonachlor
Added	57157-84-3	Isophorone	See Dow #543; [57157-84-3] for Atlox 1045A
Added	61255-81-0	Heptachlorostyrene	[61255-81-0] Heptachlorostyrene
Added	66321-94-6	Palmitic acid	See Dow #456; [66321-94-6] for Palmitic acid
Added	67774-32-7	PBB	[67774-32-7] PBB
Added	83484-75-7	Pentachlorostyrene	[83484-75-7] Pentachlorostyrene
Added	90301-92-1	Hexachlorostyrene	[90301-92-1] Hexachlorostyrene
Added	99932-75-9	Ethylene oxide	See Dow #516; [99932-75-9] for ethylene oxide
185			salt; see (benzoic acid) [69-72-7] Added to Master List.

CASE NARRATIVE - Database Additions

544		Dow Oven Cleaner	DOW RESOLVED. Multi-compound listing individual componests are Dow #325 [75-09-2] methylene chloride, [no CAS#] paraffin, Dow # 770[108-88-3] toluene, Dow # [9968-59-2] methocel, Dow # 491 [67-56-1] methanol, [35365-94-7] triethyl ammonium phosphate and [9007-33-4] monethanolamine Added to Master List.
566		Naptha solvent + Toluene + Dowanol EB - ethylene glycol + mono-n-butyl ether	DOW RESOLVED. multi-compound lisiting individual components are [no CAS #] Naptha solvent, Dow #770 [108-88-3]Toluene, [111-76-2] Dowanol EB added to Master List.
704			salt; see Dow #705 (sodium) [12258-98-9], benzoic acid [69-72-7] Added to Master List.
Added		Propane-1,2,3-triol	See Dow #252; [no CAS] for propane-1,2,3-triol.

CASE NARRATIVE - Biomonitoring Positives/Database Additions

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
Added	5103-73-1	Cis Nonachlor - 1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-(1.alpha.,2.alpha.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene	[5103-73-1] Cis Nonachlor
Added	27304-13-8	2,3,4,5,6,6a,7,7-Octachloro-1a,1b,5,5a,6,6a-hexahydro-,(1a.alpha.,1b.beta.,2.alpha.,5.alpha.,5a.beta.,6.beta.,6a.alpha.)- 2,5-methano-2H-indeno[1,2-b]oxirene	[27304-13-8] Oxychlordane
Added	29082-74-4	Octachlorostyyrene - Pentachloro(trichloroethenyl)benzene	[29082-74-4] Octachlorostyrene
Added	39765-80-5	1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-,(1.alpha.,2.beta.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene	[39765-80-5] trans Nonachlor
Added	61255-81-0	Heptachlorostyrene	[61255-81-0] Heptachlorostyrene
Added	67774-32-7	PBB	[67774-32-7] PBB
Added	83484-75-7	Pentachlorostyrene	[83484-75-7] Pentachlorostyrene
Added	90301-92-1	Hexachlorostyrene	[90301-92-1] Hexachlorostyrene

CASE NARRATIVE - RGIS System Positives/Database Additions

Dow ID	CAS Number	Chemical Name	Case Narrative Comments
Added	107-12-0	propionitrile	Appendix IX. RGIS.
Added	110-57-6	trans-1,4-dichloro-2-butene	Appendix IX. RGIS.
Added	120-83-2	2,4-Dichlorophenol	RGIS. [120-83-2] 2,4-Dichlorophenol
Added	156-59-2	cis-1,2-Dichloroethene	RGIS. [156-59-2] cis-1,2-Dichloroethene
Added	156-60-5	trans-1,2-dichloroethene	Appendix IX. RGIS.
Added	2432-11-3	2,6-Diphenyl Phenol	RGIS.
Added	7440-62-2	Vanadium	RGIS. [7440-62-2] Vanadium
Added	7783-06-4	Sulfide	RGIS.
Added	27178-34-3	Tertbutyl Phenol	RGIS.

CASE NARRATIVE - Midland Soils COI/Database Additions

Dow ID	CAS Number	Chemical Name	Case Narrative Comments

ATTACHMENT 6

Midland Soils PCOI List
November 22, 2006

Midland Soils PCOI List From DOW (11/22/06)

CAS # (sortable)	Chemical Name	In COI/TAL Database? (Y/N)
50000	Formaldehyde	Y
50328	Benzo(a)pyrene	Y
51285	2,4-Dinitrophenol	N
51796	Ethyl carbamate (Urethane)	N
53703	Dibenzo(a,h)anthracene	Y
53963	2-Acetylaminofluorene	Y
56235	Carbon tetrachloride	Y
56382	Parathion	Y
56495	3-Methylcholanthrene	Y
56553	Benzo(a)anthracene	Y
57147	1,1-Dimethyl hydrazine	N
57578	beta-Propiolactone	N
57749	Chlordane	Y
57976	7,12-Dimethylbenz(a)anthracene	Y
58899	Lindane (all isomers)	Y
59892	N-Nitrosomorpholine	Y
60117	Dimethyl aminoazobenzene	Y
60344	Methyl hydrazine	N
60355	Acetamide	Y
62533	Aniline	Y
62737	Dichlorvos	N
62759	N-Nitrosodimethylamine	Y
63252	Carbaryl	N
64675	Diethyl sulfate	N
67561	Methanol	N
67641	Acetone	Y
67663	Chloroform	Y
67721	Hexachloroethane	Y
68122	Dimethyl formamide	Y
71363	Butyl alcohol	Y
71432	Benzene (including benzene from gasoline)	Y
71556	Methyl chloroform (1,1,1-Trichloroethane)	Y
71556	1,1,1-Trichloroethane	Y-REDUNDANT
72435	Methoxychlor	Y
74839	Bromomethane	Y
74839	Methyl bromide (Bromomethane)	Y-REDUNDANT
74873	Chloromethane	Y
74873	Methyl chloride (Chloromethane)	Y-REDUNDANT
74884	Methyl iodide (Iodomethane)	Y
74953	Dibromomethane	Y
74964	bromoethane	Y
74975	Bromodichloromethane	Y
75003	Chloroethane	Y
75003	Ethyl chloride (Chloroethane)	Y-REDUNDANT
75014	Vinyl chloride	Y
75058	Acetonitrile	Y
75070	Acetaldehyde	Y
75092	Methylene chloride (Dichloromethane)	Y
75150	Carbon disulfide	Y
75218	Ethylene oxide	Y
75252	Bromoform	Y
75343	1,1-Dichloroethane	Y
75343	Ethylidene dichloride (1,1-Dichloroethane)	Y-REDUNDANT
75354	1,1-Dichloroethene	Y
75354	Vinylidene chloride (1,1-Dichloroethylene)	Y-REDUNDANT
75445	Phosgene	Y
75558	1,2-Propylenimine (2-Methyl aziridine)	N
75569	Propylene oxide	Y
75627	Bromotrichloromethane	N
75718	Dichlorodifluoromethane	N
76448	Heptachlor	Y
77474	Hexachlorocyclopentadiene	Y
77781	Dimethyl sulfate	N
78591	Isophorone	Y
78875	1,2-Dichloropropane	Y
78875	Propylene dichloride (1,2-Dichloropropane)	Y-REDUNDANT
78933	2-Butanone	Y
78933	Methyl ethyl ketone (2-Butanone)(See Modification)	Y-REDUNDANT
79005	1,1,2-Trichloroethane	Y
79016	Trichloroethylene	Y
79061	Acrylamide	Y
79107	Acrylic acid	Y
79118	Chloroacetic acid	Y
79287	Tetrabromoethene	N
79345	1,1,2,2-Tetrachloroethane	Y
79447	Dimethyl carbamoyl chloride	N
79469	2-Nitropropane	N
80057	4,4'-Isopropylidenediphenol	Y

Midland Soils PCOI List From DOW (continued)

80626	Methyl methacrylate	Y
82688	Pentachloronitrobenzene (Quintobenzene)	Y
83329	Acenaphthene	Y
84641	Anthracenedione	N
84662	Diethyl phthalate	Y
84742	Dibutylphthalate	Y
85018	Phenanthrene	Y
85449	Phthalic anhydride	N
85687	Benzyl butyl phthalate	Y
86737	Fluorene	Y
87616	1,2,3-Trichlorobenzene	Y
87650	3,4-dichlorophenol	Y
87683	Hexachlorobutadiene	Y
87865	Pentachlorophenol	Y
88062	3,4,5-trichlorophenol	Y
88755	2-Nitrophenol	Y
90040	o-Anisidine	N
90437	2-phenylphenol	Y
90471	Xanthenone	N
91203	Naphthalene	Y
91225	Quinoline	N
91576	2-Methylnaphthalene	Y
91587	2-Chloronaphthalene	Y
91941	3,3-Dichlorobenzidene	Y
92524	Biphenyl	Y
92671	4-Aminobiphenyl	Y
92875	Benzidine	N
92933	4-Nitrobiphenyl	N
93583	Benzoic acid, methyl ester	N
94757	2,4-D, salts and esters	Y
95363	1,2,4-Trimethylbenzene	Y
95476	o-Xylenes	N
95487	o-Cresol	Y
95501	1,2-Dichlorobenzene	Y
95534	o-Toluidine	Y
95578	2-chlorophenol	Y
95578	3-chlorophenol	Y-REDUNDANT
95772	3,5-dichlorophenol	N
95807	2,4-Toluene diamine	N
95943	1,2,4,5-tetrachlorobenzene	Y
95954	2,4,6-trichlorophenol	Y
96093	Styrene oxide	N
96128	1,2-Dibromo-3-chloropropane	Y
96333	Methyl acrylate	Y
96457	Ethylene thiourea	N
98077	Benzotrichloride	N
98828	Cumene	Y
98862	Acetophenone	Y
98953	Nitrobenzene	Y
100027	4-Nitrophenol	Y
100414	Ethyl benzene	Y
100425	Styrene	Y
100447	Benzyl chloride	N
100470	Benzonitrile	N
101144	4,4-Methylene bis(2-chloroaniline)	N
101688	Methylene diphenyl diisocyanate (MDI)	N
101779	4,4¬-Methylenedianiline	N
105602	Caprolactam(See Modification)	N
106423	p-Xylenes	N
106445	p-Cresol	Y
106467	1,4-Dichlorobenzene(p)	Y
106489	2,3-dichlorophenol	Y
106503	p-Phenylenediamine	Y
106514	Quinone	N
106650	Butanedioic acid, dimethyl ester	N
106887	1,2-Epoxybutane	N
106898	Epichlorohydrin (l-Chloro-2,3-epoxypropane)	Y
106934	Ethylene dibromide (Dibromoethane)	Y
106990	1,3-Butadiene	Y
107028	Acrolein	Y
107051	Allyl chloride	Y
107062	1,2-Dichlorothane	Y
107062	Ethylene dichloride (1,2-Dichloroethane)	Y-REDUNDANT
107119	Allylamine	Y
107131	Acrylonitrile	N
107186	Allyl Alcohol	Y
107211	Ethylene glycol	N
107302	Chloromethyl methyl ether	Y
107506	Tetradecamethylcycloheptasiloxane	N

Midland Soils PCOI List From DOW (continued)

108054	Vinyl acetate	Y
108101	Methyl isobutyl ketone (Hexone)	Y
108101	4-Methyl-2-pentanone	Y-REDUNDANT
108316	Maleic anhydride	N
108383	m-Xylenes	N
108394	m-Cresol	Y
108430	4-chlorophenol	N
108703	1,3,5-Trichlorobenzene	N
108850	Bromocyclohexane	N
108861	Bromobenzene	Y
108872	Methylcyclohexane	N
108883	Toluene	Y
108907	Chlorobenzene	Y
108952	Phenol	Y
110527	Benzaldehyde	N
110543	Hexane	Y
110576	trans-1,4-Dichloro-2-butene	Y
111422	Diethanolamine	Y
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)	Y
111659	Octane	N
111842	Nonane	N
114261	Propoxur (Baygon)	N
115117	Methyl propene	N
117817	Bis(2-ethylhexyl)phthalate (DEHP)	Y
117840	Di-N-Octyl phthalate	Y
118741	Hexachlorobenzene	Y
119904	3,3-Dimethoxybenzidine	N
119937	3,3'-Dimethyl benzidine	Y
120127	Anthracene	Y
120809	Catechol	Y
120821	1,2,4-Trichlorobenzene	Y
120832	2,5-dichlorophenol	Y
121142	2,4-Dinitrotoluene	Y
121448	Triethylamine	N
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)	N
122667	1,2-Diphenylhydrazine	N
123319	Hydroquinone	Y
123386	Propionaldehyde	N
123911	1,4-Dioxane (1,4-Diethyleneoxide)	Y
124185	Decane	N
124481	Dibromochloromethane	Y
126998	Chloroprene	Y
127184	tetrachloroethene	Y
127184	Tetrachloroethylene (Perchloroethylene)	Y-REDUNDANT
129000	Pyrene	Y
131113	Dimethyl phthalate	Y
132649	Dibenzofuran	Y
132649	Dibenzofurans	Y-REDUNDANT
133062	Captan	N
133904	Chloramben	N
140885	Ethyl acrylate	Y
151564	Ethylene imine (Aziridine)	N
156627	Calcium cyanamide	N
189559	Benzo(r,s,t)pentaphene	N
189640	Dibenzo(a,h)pyrene	N
191242	Benzo (g,h,i) perylene	Y
191300	Dibenzo(a,l)pyrene	N
192654	Dibenzo(a,e)pyrene	N
192972	Benzo(e)pyrene	N
193395	Indeno(1,2,3-cd)pyrene	Y
194592	7H-Dibenzo(c,g)carbazole	N
205823	Benzo(j)fluoranthene	N
205992	Benzo(b)fluoranthene	Y
206440	Benzo(j,k)fluorene(fluoranthene)	Y
206440	Fluoranthene	Y-REDUNDANT
207089	Benzo(k)fluoranthene	Y
218019	Benzo(a)phenanthrene (chrysene)	Y
218019	Chrysene	Y-REDUNDANT
224420	Dibenz(a,j)acridine	N
226368	Dibenz(a,h)acridine	N
302012	Hydrazine	N
334883	Diazomethane	N
460128	Butadiyne	N
463581	Carbonyl sulfide	N
506592	Dimethylamine	Y
510156	Chlorobenzilate	Y
532274	2-Chloroacetophenone	N
534521	4,6-Dinitro-o-cresol, and salts	Y
540841	2,2,4-Trimethylpentane	N

Midland Soils PCOI List From DOW (continued)

	540976	Dodecamethylcyclohexasiloxane	N
	541026	Decamethylcyclopentasiloxane	N
	541731	1,3-Dichlorobenzene	Y
	542881	Bis(chloromethyl)ether	N
	558134	tetrabromomethane	Y
	576249	2,4-dichlorophenol	N
	584849	2,4-Toluene diisocyanate	N
	591355	2,3,4-trichlorophenol	N
	593602	Bromoethene	Y
	593602	Vinyl bromide	Y-REDUNDANT
	593635	Chloroethyne	N
	593788	2,6-dichlorophenol	N
	594150	tribromochloromethane	N
	594183	dibromodichloromethane	N
	598163	Tribromoethene	N
	608935	Pentachlorobenzene	Y
	609198	2,3,4,5-tetrachlorophenol	N
	624839	Methyl isocyanate	N
	627930	Hexanedioic acid, dimethyl ester	N
	630206	1,1,1,2-Tetrachloroethane	Y
	634662	1,2,3,4-tetrachlorobenzene	Y
	634902	1,2,3,5-tetrachlorobenzene	Y
	676631	Propene	N
	676631	Propylene	N-REDUNDANT
	680319	Hexamethylphosphoramide	N
	684935	N-Nitroso-N-methylurea	N
	822060	Hexamethylene-1,6-diisocyanate	N
	872504	N-methyl-2-pyrrolidone	Y
	933754	2,4,5-trichlorophenol	N
	933788	2,3,6-trichlorophenol	N
	935955	2,3,5,6-tetrachlorophenol	N
	992983	Formic acid	N
	1120214	Undecane	N
	1120714	1,3-Propane sultone	N
	1319773	Cresols/Cresylic acid (isomers and mixture)	N
	1330207	Xylenes (isomers and mixture)	Y
	1332214	Asbestos	N
	1336363	Polychlorinated biphenyls (Aroclors)	N
	1582098	Trifluralin	N
	1634044	Methyl tert butyl ether	N
	1735177	Cyclohexane	N
	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Y
	3547044	DDE	N
	3697243	5-Methylchrysene	N
	4901513	2,3,4,6-tetrachlorophenol	N
	5385751	Dibenzo(a,e)fluoranthene	N
	5522430	1-Nitropyrene	N
	6012971	Tetrachlorothiophene	N
	7550450	Titanium tetrachloride	N
	7572294	Dichloroethyne	N
	7647010	Hydrochloric acid	Y
	7664393	Hydrogen fluoride (Hydrofluoric acid)	N
	7664417	Ammonia	Y
	7723140	Phosphorus	N
	7726956	Bromine	Y
	7782505	Chlorine	Y
	7783064	Hydrogen sulfide(See Modification)	N
	7803512	Phosphine	N
	8001352	Toxaphene (chlorinated camphene)	Y
	8003074	1,2-Dibromoethane	N
	8031332	Heptane	N
	8031354	Pentane	N
	10061015	cis-1,3-Dichloropropene	Y
	10061026	trans-1,3-Dichloropropene	Y
	15950660	2,3,5-trichlorophenol	N
	30498669	Dimethylheptane	N
	52663577	Butoxyethanol	Y
	77392713	Perylene	N
	83847498	bromochloromethane	N
	87701653	Ethylene	N
	145538745	Decabromodiphenyl oxide	N
	220713315	Butyl acrylate	N
isomer uncertain		Bromochlorobenzene	
isomer uncertain		bromodichloroethane	
isomer uncertain		Bromodichlorophenol	
isomer uncertain		Chlorobutane	
isomer uncertain		Chlorooctane	
isomer uncertain		Chloropyridine	
26249-12-7		Dibromobenzene	

Midland Soils PCOI List From DOW (continued)

isomer uncertain	dibromochloroethane
isomer uncertain	Dimethylphenanthrene
isomer uncertain	Ethylhexanoic acid
isomer uncertain	Ethylhexanol
isomer uncertain	Hexene
isomer uncertain	Methylheptane
isomer uncertain	Methyphenanthrene
isomer uncertain	Methylphenol
isomer uncertain	Pentachlorobutadiene
isomer uncertain	Pentene
isomer uncertain	tribromochloroethane
271-89-6	Benzofuran
isomer uncertain	Benzopyranone
isomer uncertain	Bromoanthracene
isomer uncertain	Bromobenzonitrile
isomer uncertain	Bromochlorocyclohexanol
107-04-0	Bromochloroethane
isomer uncertain	Bromochloroethene
isomer uncertain	Bromochloroethyne
isomer uncertain	Bromochloropropyne
16536-57-5	Bromocyclohexanol
isomer uncertain	Bromodichlorobenzene
isomer uncertain	Bromodichloroethene
isomer uncertain	Bromodichloropropyne
isomer uncertain	Bromodimethylbenzene
isomer uncertain	Bromoethyne
	Bromoheptane
629-04-9	1-bromoheptane
1974-04-5	2-bromoheptane
1974-05-6	3-bromoheptane
998-93-6	4-bromoheptane
isomer uncertain	Bromomethoxycyclohexane
	Bromomethylbenzene
95-46-5	o-bromomethylbenzene
106-38-7	p-bromomethylbenzene
591-17-3	m-bromomethylbenzene
100-39-0	benzylbromide
isomer uncertain	Bromomethylpropane
27497-51-4	Bromonaphthalene
106-95-6	Bromopropene (3-bromo-1-propene)
106-96-7	Bromopropyne (3-bromo-1-propyne)
107103-78-6	Bromotrichlorobenzene (1-bromo-2,3,4-trichlorobenzene)
127099-33-6	bromotrichloroethane (2-bromo-1,1,1-trichloroethane)
isomer uncertain	Bromotrichloroethene
74-84-0	C2 Alkanes (Ethane)
87701-65-3	C2 Alkenes (Ethene)
74-86-2	C2 Alkynes (Acetylene)
75-01-4	chloroethene (vinyl chloride)
isomer uncertain	Chlorothiophene
631-64-1 (acid)	Dibromoacetic acid, methyl ester
isomer uncertain	Dibromochloroethene
60956-24-3	Dibromochlorobenzene (1,2-dibromo-4-chlorobenzene)
4526-56-1	Dibromochlorophenol (2,4-dibromo-6-chlorophenol)
isomer uncertain	Dibromocyclohexane
683-68-1	dibromodichloroethane (1,2-dibromo-1,2-dichloroethane)
isomer uncertain	Dibromodichloroethene
25429-23-6	Dibromoethene
624-61-3	dibromoethyne
	Dibromopropane
78-75-1	1,2-dibromopropane
109-64-8	1,3-dibromopropane
594-16-1	2,2-dibromopropane
isomer uncertain	Dibromothiophene
540-59-0	1,2-Dichloroethene (either isomer)
isomer uncertain	Dichloronaphthyridine
isomer uncertain	Diisocyanates
Redundant (Dow ID 351 or 352)	2,4-Dinitro-o-sec-butylphenol (DINOSEB)
142-62-1	Hexanoic acid
85-44-9	Isobenzofuran-1,3-dione
26914-18-1	Methylanthracene
78-78-4	Methyl butane (2-methyl)
isomer uncertain	Methyldecane
6975-98-0	2-methyldecane
2847-72-5	4-methyldecane
27137-41-3	Methylfuran
isomer uncertain	Methylpentenal
12679-43-5	Naphthalenedione
1600-37-9	Pentachloropropene
isomer uncertain	Phenalenone

Midland Soils PCOI List From DOW (continued)

isomer uncertain	Phenoxybiphenyl
	tetrabromoethane
25167-20-8	1,1,1,2-tetrabromoethane
79-27-6	1,1,2,2-tetrabromoethane
	Tribromobutane
632-05-3	1,2,3-tribromobutane
3675-68-1	1,1,2-tribromobutane
3675-69-2	1,2,2-tribromobutane
62127-47-3	2,2,3-tribromobutane
78-74-0	tribromoethane (1,1,2-tribromoethane)
NO CAS Number	Tribromochloroethene
118-79-6	Tribromophenol
55335-06-3 (acid)	Triclopyr triethylammonium salt
25323-89-1	trichloroethane
71-55-6	1,1,1-trichloroethane
79-00-5	1,1,2-trichloroethane
79-01-6	Trichloroethene
isomer uncertain	Trimethylhexane
87-62-7	2,6-xylidene

ATTACHMENT 7

Tentatively Identified Compounds – Specification

Specification:

Treatment of Site-Specific Constituents of Interest, Standard Target Analytes, Extended Target Analytes, and Tentatively Identified Compounds
Tittabawassee River and Upper Saginaw River Project
Midland Soils Project

Purpose: The ion current chromatograms of multi-compound analytical methods based upon GC/MS or LC/MS (e.g. USEPA 8260 and 8270) can contain information beyond the fully calibrated target analytes. Qualitative and quantitative information about the substances responsible for non-target peaks in such chromatograms can be included in the laboratory data reports if the peaks are handled using the procedure for Tentatively Identified Compounds as described in USEPA Methods 8260B and 8270C (section 7.6.2 in both methods).

Specifications for Handling Unknown Peaks as TICs: The specifications for handling TICs in Method 8260 are given in sections 8.10 and 9.5 of the ATS SOP for this method, and in method 8270 are given in sections 8.11 and 9.7 of that SOP (ATS QAPP, July 2006). To summarize, compounds detected will be identified and quantified as TICs if they have peak areas equal to or greater than 10 percent of the nearest (retention time) internal standard. All such peaks will be reported in a special section of the laboratory data report for each sample.

For non-target peaks meeting the 10 percent threshold, the mass spectrum will be compared to referenced spectra in the current NIST library, using a computer search routine. If the spectral match has a fit of 80 percent or better, the substance name representing the best fit will be reported as the tentative identity of the compound. If the spectral fit is less 80 percent, the peak will be reported as "Unknown RRT x.xxx", where x.xxx is the relative retention time in minutes. In either case, an estimated concentration will be calculated by comparing the peak area to that of the internal standard, using a response factor of 1.00. The estimated concentration will be shown on the laboratory data report.

ATTACHMENT 8

Target Analytes Lists
Revision Date: November 10, 2006

- USEPA Appendix IX
- USEPA 8260 (Volatile Organics)
- USEPA 8270 (Semi-Volatile Organics)
- USEPA 1613-B (Chlorinated Dioxins & Furans)
- Method 1613-TRP/RT (Chlorinated Dioxins & Furans)
- USEPA 1668-A (Polychlorinated Biphenyls)
- USEPA 8041 (Phenols)
- USEPA 8081 (Chlorinated Pesticides)
- USEPA 8082 (Polychlorinated Biphenyls)
- USEPA 8121 (Chlorinated Hydrocarbons)
- USEPA 8141 (Organophosphorus Compounds)
- USEPA 8151 (Chlorinated Herbicides)
- USEPA 6010/6020 (Metals)
- USEPA 7471 (Mercury)
- Other USEPA Methods

Target Analyte List: USEPA 8260
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8260B (SW-846, rev. Dec. 1996)
Test Procedure: Methanol extraction; Purge & Trap, GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
Tetrachloromethane	56-23-5	257	0.05
Diethyl ether	60-2-97	NA	0.2
Acetone	67-64-1	152	1
Chloroform	67-66-3	286	0.05
Benzene	71-43-2	209	0.05
1,1,1-Trichloroethane	71-55-6	16	0.05
Methyl Bromide	74-83-9	498	0.2
Chloromethane	74-87-3	287	0.25
Iodomethane	74-88-4	504	0.1
Dibromomethane	74-95-3	513	0.25
Bromochloromethane	74-97-5	233	0.1
Chloroethane	75-00-3	285	0.25
Chloroethene	75-01-4	790	0.04
Dichloromethane	75-09-2	325	0.1
Carbon Disulfide	75-15-0	254	0.25
Tribromomethane	75-25-2	236	0.1
Bromodichloromethane	75-27-4	234	0.1
1,1-Dichloroethane	75-34-3	21	0.05
1,1-Dichloroethene	75-35-4	22	0.05
t-Butanol	75-65-0	NA	2.5
Trichlorofluoromethane	75-69-4	NA	0.1
Dichlorodifluoromethane	75-71-8	323	0.25
1,2-Dichloropropane	78-87-5	49	0.05
Methyl ethyl ketone	78-93-3	503	0.75
1,1,2-Trichloroethane	79-00-5	19	0.05
Trichlorethene	79-01-6	774	0.05
1,1,2,2-Tetrachloroethane	79-34-5	17	0.05
2-Chlorotoluene	95-49-8	NA	0.05
1,2,4-Trimethylbenzene	95-63-6	44	0.1
1,2-Dibromo-3-chloropropane	96-12-8	45	0.25
1,2,3-Trichloropropane	96-18-4	41	0.1
tert-Butylbenzene	98-06-6	NA	0.05
Isopropylbenzene	98-82-8	453	0.25
4-Isopropyltoluene	99-87-6	NA	0.1
Ethylbenzene	100-41-4	386	0.05
Styrene	100-42-5	730	0.05
Propylbenzene	103-65-1	NA	0.1
n-Butylbenzene	104-51-8	NA	0.05
4-Chlorotoluene	106-43-4	NA	0.05
1,2-Dibromoethane	106-93-4	46	0.05
1,2-Dichloroethane	107-06-2	48	0.05
Acrylonitrile	107-13-1	165	0.1
Vinyl Acetate	108-05-4	NA	5
4-Methyl-2-pentanone	108-10-1	140	2.5
Diisopropyl ether	108-20-3	NA	0.25
1,3,5-Trimethylbenzene	108-67-8	NA	0.1
Bromobenzene	108-86-1	232	0.1
Toluene	108-88-3	770	0.1
Chlorobenzene	108-90-7	282	0.05

Target Analyte List: USEPA 8260
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8260B (SW-846, rev. Dec. 1996)
Test Procedure: Methanol extraction; Purge & Trap, GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes (continued)			
Tetrahydrofuran	109-99-9	NA	1
t-1,4-Dichloro-2-butene	110-57-6	NA	0.05
Cyclohexane	110-82-7	308	0.25
Dibromochloromethane	124-48-1	321	0.1
Tetrachloroethene	127-18-4	18	0.05
sec-Butylbenzene	135-98-8	NA	0.05
1,3-Dichloropropane	142-28-9	NA	0.05
cis-1,2-Dichloroethene	156-59-2	Added	0.05
trans-1,2-Dichloroethene	156-60-5	NA	0.05
1,2,3-Trimethylbenzene	526-73-8	NA	0.1
1,1-Dichloropropene	563-58-6	NA	0.05
2-Hexanone	591-78-6	108	2.5
2,2-Dichloropropane	594-20-7	NA	0.05
1,1,1,2-Tetrachloroethane	630-20-6	15	0.1
Ethyl tert-butyl ether	637-92-3	NA	0.25
t-Amyl methyl ether	994-05-8	NA	0.25
Xylenes	1330-20-7	467	0.15
Methyl tert-butyl ether	1634-04-4	NA	0.25
cis-1,3-Dichloro-1-propene	10061-01-5	299	0.05
trans-1,3-Dichloropropene	10061-02-6	Added	0.05
Extended Target Analytes			
None			

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8260
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8260B (SW-846, rev. Dec. 1996)
Test Procedure: Methanol extraction; Purge & Trap, GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (handled as TICs if found)			
N-butyl alcohol	71-36-3	567	
Bromoethane	74-96-4	387	
Acetonitrile	75-05-8	153	
Ethylene Oxide	75-21-8	408	
Carbonic dichloride	75-44-5	640	
Propylene oxide	75-56-9	693	
Pentachloroethane	76-01-7	619	
2,2-Dichloro-1,1-difluoro-1-methoxyethane	76-38-0	496	
Isobutylalcohol	78-83-1	447	
2,3-Dichloropropene	78-88-6	Added	
2-Chloroacetylchloride	79-04-9	269	
Methyl methacrylate	80-62-6	505	
Diethylaniline	91-66-7	331	
2-Methylbenzenamine	95-53-4	604	
Acetic acid, chloro-, methyl ester	96-34-4	501	
Ethyl methacrylate	97-63-2	389	
4-(1,1-Dimethylethyl)cyclohexanone	98-53-3	10	
Benzene, (1-methylethenyl)-	98-83-9	175	
Nitrobenzene	98-95-3	575	
(2-Bromoethyl)benzene	103-63-9	235	
Chloromethyloxirane	106-89-8	377	
1,3-Butadiene	106-99-0	50	
Acrolein	107-02-8	159	
1-Bromo-2-chloroethane	107-04-0	399	
3-Chloro-1-propene	107-05-1	170	
2-Chloroethanol	107-07-3	397	
1,4-Dioxane	123-91-1	57	
Methylacrylonitrile	126-98-7	510	
2-Chlorobuta-1,3-diene	126-99-8	291	
Butyl acrylate	141-32-2	239	
2,2,2-Trichloroethane-1,1-diol	302-17-0	270	
1,1'-Thiobis[2-chloro]ethane	505-60-2	527	
Tetrabromomethane	558-13-4	256	
1,2-Dichloro-1-propene	563-54-2	688	
3,3-Dichloropropene	563-57-5	Added	
Bromoethene	593-60-2	789	
Divinylbenzene	1321-74-0	367	
Isocyclocitral-S	1335-66-6	448	
1-(Chloromethyl)-4-ethenylbezene	1592-20-7	792	
Chloromethanone	2602-42-8	261	
1,3-dichloroprop-1-ene	8022-76-2	52	
Chlorostyrene	8063-96-5	Added	
Vinyl toluene	25013-15-4	791	
Diethylbenzene	25340-17-4	332	
Cyclotene	79299-96-0	309	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
Benzo[a]pyrene	50-32-8	213	0.33
2,4-Dinitrophenol	51-28-5	88	0.8
Dibenz[a,h]anthracene	53-70-3	319	0.33
Benz[a]anthracene	56-55-3	212	0.33
4-Chloro-3-methyl-phenol	59-50-7	613	0.33
Benzenamine	62-53-3	191	0.8
N-Methyl-N-nitrosomethanamine	62-75-9	578	0.33
Hexachloroethane	67-72-1	428	0.3
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	77-47-4	432	0.33
Isophorone	78-59-1	451	0.33
1,2-Dihydroacenaphthylene	83-32-9	146	0.33
Diethyl phthalate	84-66-2	330	0.33
Di-n-butyl phthalate	84-74-2	349	0.33
Phenanthrene	85-01-8	625	0.33
Butyl benzyl phthlate	85-68-7	240	0.33
N-Nitroso-N-phenybenzenamine	86-30-6	580	0.33
9H-Carbazole	86-73-7	414	0.33
Carbazole	86-74-8	NA	0.33
1,1,2,3,4,4-Hexachloro-1,3-butadiene	87-68-3	430	0.33
Pentachlorophenol	87-86-5	621	0.8
2,4,6-Trichlorophenol	88-06-2	82	0.33
2-Nitrobenzenamine	88-74-4	597	0.8
2-Nitrophenol	88-75-5	598	0.33
Naphthalene	91-20-3	565	0.33
2-Methylnaphthalene	91-57-6	112	0.33
2-Chloronaphthalene	91-58-7	100	0.33
3,3'-Dichlorobenzidine	91-94-1	117	2
Benzidine	92-87-5	NA	1
2-Methylphenol	95-48-7	591	0.33
1,2-Dichlorobenzene	95-50-1	47	0.33
2-Chlorophenol	95-57-8	102	0.33
2,4,5-Trichlorophenol	95-95-4	80	0.33
Nitrobenzene	98-95-3	NA	0.33
3-Nitroaniline	99-09-2	518	0.8
4-Nitrobenzenamine	100-01-6	649	0.8
4-Nitrophenol	100-02-7	650	0.8
Benzyl alcohol	100-51-6	218	3.3
1-Bromo-4-phenoxybenzene	101-55-3	133	0.33
Azobenzene	103-33-3	NA	0.2
2,4-Dimethylphenol	105-67-9	87	0.33
4-Methylphenol	106-44-5	615	0.33
1,4-Dichlorobenzene	106-46-7	56	0.33
3-Methylphenol	108-39-4	488	0.33
Bis(2-chloro-1-methylethyl)ether	108-60-1	222	0.33
Phenol	108-95-2	626	0.33

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes (continued)			
Pyridine	110-86-1	697	0.33
Bis(2-chloroethyl) ether	111-44-4	224	0.1
Bis(2-chloroethoxy)methane	111-91-1	223	0.33
Bis(2-ethylhexyl) phthlate	117-81-7	225	0.33
Di-n-octyl phthalate	117-84-0	355	0.33
Hexachlorobenzene	118-74-1	429	0.33
Anthracene	120-12-7	197	0.33
1,2,4-Trichlorobenzene	120-82-1	43	0.33
2,4-Dichlorophenol	120-83-2	Add	0.33
2,4-Dinitrotoluene	121-14-2	89	0.33
Pyrene	129-00-0	696	0.33
Dimethyl phthalate	131-11-3	342	0.33
Dibenzofuran	132-64-9	320	0.33
Benzo[ghi]perylene	191-24-2	215	0.33
Indeno[1,2,3-cd]pyrene	193-39-5	440	0.33
Benz[e]acephenanthrylene	205-99-2	214	0.33
Fluoranthene	206-44-0	413	0.33
Benzo[k]fluoranthene	207-08-9	216	0.33
Acenaphthylene	208-96-8	145	0.33
Chrysene	218-01-9	296	0.33
2-Methyl-4,6-dinitrophenol	534-52-1	111	0.8
1,3-Dichlorobenzene	541-73-1	51	0.33
2,6-Dinitrotoluene	606-20-2	93	0.33
N-Nitroso-N-propyl-1-propanamine	621-64-7	581	0.33
4-Chlorophenyl phenyl ether	7005-72-3	137	0.33
Extended Target Analytes			
1-Chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethenyl]benzene (o,p'-DDD)	53-19-0	60	TBD
1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-(1.alpha.,2.alpha.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene (cis Nonachlor)	5103-73-1	Added	TBD
2,3,4,5,6,6a,7,7-Octachloro-1a,1b,5,5a,6,6a-hexahydro-, (1a.alpha.,1b.beta.,2.alpha.,5.alpha.,5a.beta.,6.beta.,6a.alpha.)- 2,5-methano-2H-indeno[1,2-b]oxirene (Oxychlordane)	27304-13-8	Added	TBD
Pentachloro(trichloroethenyl)benzene (Octachlorostyrene)	29082-74-4	Added	TBD
Heptachlorostyrene	61255-81-0	Added	TBD
Polybrominated biphenyls (PBB)	67774-32-7	Added	TBD
Pentachlorostyrene	83484-75-7	Added	TBD
Hexachlorostyrene	90301-92-1	Added	TBD

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (handled as TICs if found)			
2-(Acetyloxy) benzoic acid	50-78-2	206	
O-[4-[(Dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester phosphorothioic acid	52-85-7	139	
N-9H-Fluoren-2-yl-acetamide	53-96-3	95	
N-Ethyl-N-nitrosoethanamine	55-18-5	577	
O,O-Diethyl O-(4-nitrophenyl) ester phosphorothioic acid	56-38-2	611	
1,2-Dihydro-3-methylbenz[j]aceanthrylene	56-49-5	123	
1,1',1''-Phosphinylidynetris[2-methyl]aziridine	57-39-6	762	
1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene	57-74-9	272	
7,12-Dimethylbenz[a]anthracene	57-97-6	144	
1,2,3,4,5,6-Hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta)-cyclohexane	58-89-9	417	
2,3,4,6-Tetrachlorophenol	58-90-2	74	
N-Nitrosomorpholine	59-89-2	583	
N,N-Dimethyl-4-(phenylazo)- benzenamine	60-11-7	605	
Benzeneethanol	60-12-8	632	
O,O-Dimethyl S-[2-(methylamino)-2-oxoethyl] ester phosphorodithioic acid	60-51-5	338	
3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aR,2R,2aS,3S,6R,6aR,7S,7aS)-rel-2,7:3,6-Dimethanonaphth[2,3-b]oxirene	60-57-1	327	
N-(4-ethoxyphenyl)ethanamide	62-44-2	529	
Ethyl methanesulfonate	62-50-0	390	
Benzoic acid	65-85-0	217	
Benzoic acid, 2-hydroxy	69-72-7	Added	
2,2'-Methylenebis[3,4,6-trichloro]phenol	70-30-4	434	
3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aR,2R,2aR,3R,6S,6aS,7S,7aS)-rel-2,7:3,6-dimethanonaphth[2,3-b]oxirene	72-20-8	550	
1,1'-(2,2,2-Trichloroethylidene)bis[4-methoxy-benzene]	72-43-5	495	
1,1'-(2,2-Dichloroethylidene)bis[4-chlorobenzene]	72-54-8	125	
1,1'-(Dichloroethenylidene)bis[4-chlorobenzene]	72-55-9	126	
1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-Methano-1H-indene	76-44-8	425	
Dicyclopentadiene	77-73-6	326	
Tetraethyllead	78-00-2	761	
Acrylamide	79-06-1	160	
1,1,2,2-Tetrabromoethane	79-27-6	156	
4,4'-(1-Methylethylidene)bisphenol	80-05-7	128	
1-Chloro-4-(4-chlorophenyl)sulfonyloxy-benzene	80-33-1	211	
Pentachloronitrobenzene	82-68-8	620	
3-Methylsalicylic acid	83-40-9	601	
1-Naphthaleneacetic acid	86-87-3	172	
3,5-Dibromo-N-(4-bromophenyl)-2-hydroxybenzamide	87-10-5	748	

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (continued) (handled as TICs if found)			
1,2,3-Trichlorobenzene	87-61-6	40	
2,6-Dimethylbenzenamine	87-62-7	94	
2,6-Dichlorophenol	87-65-0	92	
1,2,3,4,5-Pentabromo-6-chloro-cyclohexane	87-84-3	24	
2-(1-Methylpropyl)-4,6-dinitrophenol	88-85-7	351	
3H-Pyrazol-3-one, 2,4-dihydro-5-methyl-2-phenyl-	89-25-8	634	
2-(1-Methylpropyl)phenol	89-72-5	603	
Salicylaldehyde	90-02-8	703	
[1,1'-Biphenyl]-2-ol	90-43-7	599	
2-Naphthalenamine	91-59-8	113	
N,N-Dimethyl-N'-2-pyridinyl-N'-(2-ethienylmethyl)-1,2-ethanediamine	91-80-5	492	
2-Chloro-4-phenyl-phenol/3-Chloro[1,1'-biphenyl]-4-ol	92-04-6	99	
Biphenyl	92-52-4	221	
[1,1'-Biphenyl]-4-amine	92-67-1	131	
[1,1'-Bicyclohexyl]-4-one	92-68-2	138	
P-Phenylphenol	92-69-3	682	
Benzenemethanol, .alpha.-methyl-, acetate	93-92-5	508	
Safrole	94-59-7	701	
2-Methylbenzenamine	95-53-4	604	
1,2,4,5-Tetrachlorobenzene	95-94-3	42	
1-Chloro-2,4-dinitrobenzene	97-00-7	352	
Tertiary butyl catechol	98-29-3	752	
4-(1,1-Dimethylethyl)phenol	98-55-4	694	
Acetophenone	98-86-2	154	
Sym-Trinitrobenzene	99-35-4	746	
2-Methyl-5-nitroaniline	99-55-8	143	
m-Dinitrobenzene	99-65-0	489	
1-(4-Chlorophenyl)-ethanone	99-91-2	557	
Phenylhydrazine	100-63-0	633	
N-Nitrosopiperidine	100-75-4	584	
Diphenyl methane	101-81-5	359	
Diphenyl ether	101-84-8	358	
Acetic acid, 2-phenylethyl ester/2-Phenyl ester acetic acid	103-45-7	638	
(2-Bromoethyl)benzene	103-63-9	235	
1,4-Dibromobenzene	106-37-6	616	
4-Chloro-benzenamine	106-47-8	612	
1,4-Benzenediamine	106-50-3	681	
2-Methylpyridine	109-06-8	116	
1,1'-Iminobis-2-propanol	110-97-4	336	
Benzoic acid, 2-hydroxy-, phenyl ester	118-55-8	635	
3-hydroxy-2-methyl-pyran-4-one	118-71-8	122	
2-Aminobenzoic acid	118-92-3	198	
Methyl salicylate (Oil of wintergreen)	119-36-8	509	
4-Chloro-2-(phenylmethyl)-phenol	120-32-1	588	

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (continued) (handled as TICs if found)			
Isosafrole	120-58-1	455	
Indole	120-72-9	442	
1,2-Benzenediol	120-80-9	263	
Vanillin	121-33-5	787	
2-Chloro-4-nitro-benzenamine	121-87-9	600	
.alpha.alpha.-Dimethylbenzeneethanamine	122-09-8	173	
N-Phenylbenzenamine	122-39-4	360	
2-phenoxyethanol	122-99-6	114	
p-Hydroxybenzaldehyde	123-08-0	642	
Hydroquinone	123-31-9	438	
O,O,O-Triethyl ester phosphorothioic acid	126-68-1	587	
1,4-Naphthalenedione	130-15-4	58	
[1,1'-Biphenyl]-2-ol sodium salt	132-27-4	115	
1-Naphthalenamine	134-32-7	64	
Aramite	140-57-8	202	
Dihydrochloride piperazine	142-64-3	645	
1,1a,3,3a,4,5,5,5a,5b,6-Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[cd]pentalen-2-one	143-50-0	273	
2-methyl-3,5-dinitro-benzamide	148-01-6	110	
4-Ethoxybenzenamine	156-43-4	610	
O,O-Diethyl O-pyrazinyl ester phosphorothioic acid	297-97-2	586	
O,O-Dimethyl O-(4-nitrophenyl) ester phosphorothioic acid	298-00-0	507	
O,O-Diethyl S-[(ethylthio)methyl] ester phosphorodithioic acid	298-02-2	639	
O,O-Diethyl S-[2-(ethylthio)ethyl]ester phosphorodithioic acid	298-04-4	366	
O-(2,4-Dichlorophenyl) O-methylisopropylphosphoramidothioate	299-85-4	563	
methyl-2-chloro-4-(1,1-dimethylethyl)phenyl methyl ester phosphoramidic acid	299-86-5	564	
Aldrin - 1,2,3,4,10,10-Xexachloro-1,4,4a,5,8,8a-hexahydro-(1.alpha.,4.alpha.,4a.beta.,5.alpha.,8.alpha.,8a.beta.)-1,4:5,8-dimethanonaphthalene	309-00-2	532	
4-(Dimethylamino)-3,5-dimethyl-, methylcarbamate phenol	315-18-4	9	
1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)Cyclohexane	319-84-6	174	
1,2,3,4,5,6-Hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)-cyclohexane	319-85-7	220	
1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	315	
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-(1R,4S,4aS,5R,8S,8aR)-rel-1,4:5,8-dimethanonaphthalene	465-73-6	449	
Ethyl 2,2-bis(4-chlorophenyl)-2-hydroxy-acetate	510-15-6	283	
Tetrabromomethane	558-13-4	256	
10-Chloro-5,10-dihydrophenarsazine	578-94-9	361	
4-Chloro-2-phenyl-phenol	607-12-5	136	
Pentachlorobenzene	608-93-5	618	
1,2,3,4-Tetrachlorobenzene	634-66-2	32	
1,2,3,5-Tetrachlorobenzene	634-90-2	33	

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (continued) (handled as TICs if found)			
N-Methyl-2-pyrrolidone	872-50-4	576	
N-Butyl-N-nitroso-1-butanamine	924-16-3	579	
N-Nitrosopyrrolidine	930-55-2	585	
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.beta.,6.alpha.,9.alpha.,9a.beta.)-6,9-methano-2,4,3-benzodioxathiepin	959-98-8	547	
2,3,4,5,6,7,7-Heptachloro-1a,1b,5,5a,6,6a-hexahydro-,(1aR,1bS,2R,5S,5aR,6S,6aR)-rel-2,5-Methano-2H-indeno[1,2-b]oxirene	1024-57-3	426	
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide-6,9-methano-2,4,3-benzodioxathiepin	1031-07-8	549	
4-Bromobenzocyclobutene (BrBCB)	1073-39-8	132	
1,1'-Oxybis[2,3,4,5,6-pentabromobenzene	1163-19-5	314	
Isocyclocitral-S	1335-66-6	448	
4-(Chloroacetyl)-morpholine	1440-61-5	525	
Tertbutylstyrene	1746-23-2	750	
N,N'-Dimethyl-, phenyl ester phosphorodiamidic acid	1754-58-1	530	
Pentachloromethoxybenzene	1825-21-4	617	
1,1,2,3,3,3-Hexachloro-1-propene	1888-71-7	435	
2,6-Difluorobenzonitrile	1897-52-5	91	
(2,4-Dichlorophenoxy)-2-butoxyethyl ester acetic acid	1929-73-3	83	
2,3,5-Trichloro-1H-pyridin-4-one	1970-40-7	76	
Pentachloropyridine	2176-62-7	622	
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303-16-4	14	
1,1a,2,2,3,3a,4,5,5,5a,5b,6-Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta[cd]pentalene	2385-85-5	556	
1-Naphthaleneacetic acid, methyl ester	2876-78-0	502	
2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0	322	
Tetraethyl dithiopyrophosphate	3689-24-5	760	
Octyl methoxycinnamate	5466-77-3	593	
2,6-Difluorobenzenamine	5509-65-9	90	
1,3-Benzenediol, disodium salt	6025-45-2	210	
2,2',2''-Nitrilotris-sulfate (salt) ethanol	7376-31-0	778	
2,2a,3,3,4,7-Hexachlorodecahydro-(1.alpha.,2.beta.,2a.beta.,4.beta.,4a.beta.,5.beta.,6a.beta.,6b.beta.,7R*)-1,2,4-methenocyclopenta[cd]pentalene-5-carboxaldehyde	7421-93-4	551	
3,3'-Dimethylbenzidine	7563-59-9	118	
Toxaphene	8001-35-2	772	
Chlorostyrene	8063-96-5	Added	
2,2-Dibromo-2-cyanoacetamide	10222-01-2	311	
N-Methyl-N-nitrosoethanamine	10595-95-6	582	
Aroclor 1260	11096-82-5	655	
Aroclor 1254	11097-69-1	533	
Aroclor 1268	11100-14-4	657	

Target Analyte List: USEPA 8270
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8270C (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (continued) (handled as TICs if found)			
Aroclor 1221	11104-28-2	651	
Aroclor 1232	11141-16-5	652	
Aroclor 1248	12672-29-6	654	
4-Chloro-2-cyclopentylphenol	13347-42-7	134	
Decabromobiphenyl	13654-09-6	313	
Tetrachlorophenol	25167-83-3	759	
Dinitrophenol	25550-58-7	354	
Hexachlorocyclohexane	27154-44-5	431	
1,1'-Biphenyl, ar,ar,ar,ar,ar',ar',ar',ar'-octabromo-	27858-07-7	592	
1,1'-Biphenyl, phenoxy-	28984-89-6	Added	
Octachlorostyyrene - Pentachloro(trichloroethenyl)benzene	29082-74-4	Added	
1-(3-Chlorophenyl)ethanone	29731-15-5	281	
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.alpha.,6.beta.,9.beta.,9a.alpha.)-6,9-methano-2,4,3-benzodioxathiepin	33213-65-9	548	
Aroclor 1262	37324-23-5	656	
(4-[4-(hydroxy-diphenyl-methyl)-1-piperidyl]-1-(4-tert-butylphenyl)-butan-1-ol	50679-08-8	8	
Tert-butylstyrene	50976-19-7	751	
Aroclor 1242	53469-21-9	653	
Benzenamine, N,N-dimethyl-, sulfate (1:1)	58888-49-6	348	
Heptachlorostyrene	61255-81-0	Added	
PBB	67774-32-7	Added	
3,5-Dichloro-2,6-dimethyl-1H-pyridin-4-one	68821-99-8	304	
Pentachlorostyrene	83484-75-7	Added	
Dimethyl 2,3,5,6-tetrachlorobenzene-1,4-dicarboxylate	87209-56-1	341	
2-ethoxyethyl 2-[4-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]oxyphenoxy]propanoate	87237-48-7	107	
Hexachlorostyrene	90301-92-1	Added	
2-(2,2-Difluoroethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c]pyrimidin-2-yl)-6-(trifluoromethyl)- benzenesulfonamide	219714-96-2	558	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 1613-B
Chemical Method References and Reporting Limits
TR & USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 1613B (40 CFR 136, as amended)
Test Procedure: Solvent extraction, HR/LR GC/MS or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	79	1.0 ng/kg TEQ
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3268-87-9	26	1.0 ng/kg TEQ
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408-74-3	37	1.0 ng/kg TEQ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822-46-9	28	1.0 ng/kg TEQ
1,2,3,4,6,7,8,9-Octachlorodibenzofuran	39001-02-0	25	1.0 ng/kg TEQ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227-28-6	31	1.0 ng/kg TEQ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321-76-4	39	1.0 ng/kg TEQ
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	78	1.0 ng/kg TEQ
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	29	1.0 ng/kg TEQ
1,2,3,4,8,9-Hexachlorodibenzofuran	55684-94-1	30	1.0 ng/kg TEQ
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	75	1.0 ng/kg TEQ
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	38	1.0 ng/kg TEQ
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	34	1.0 ng/kg TEQ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653-85-7	35	1.0 ng/kg TEQ
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	27	1.0 ng/kg TEQ
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	73	1.0 ng/kg TEQ
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	36	1.0 ng/kg TEQ
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
None			

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8041
Chemical Methods, References, and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8041 (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; derivatization; GC/FID, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
2,4-Dinitrophenol	51-28-5	88	0.8
2,3,4,6-Tetrachlorophenol	58-90-2	74	0.8
4-Chloro-3-methyl-phenol	59-50-7	613	0.28
2,6-Dichlorophenol	87-65-0	92	0.33
Pentachlorophenol	87-86-5	621	0.8
2,4,6-Trichlorophenol	88-06-2	82	0.33
2-Nitrophenol	88-75-5	598	0.33
2-(1-Methylpropyl)-4,6-dinitrophenol	88-85-7	351	0.2
2-Methylphenol	95-48-7	591	0.33
2-Chlorophenol	95-57-8	102	0.33
2,4,5-Trichlorophenol	95-95-4	80	0.33
4-Nitrophenol	100-02-7	650	0.8
2,4-Dimethylphenol	105-67-9	87	0.33
4-Methylphenol	106-44-5	615	0.33
3-Methylphenol	108-39-4	488	0.33
Phenol	108-95-2	626	0.33
2,4-Dichlorophenol	120-83-2	Added	0.33
2-Methyl-4,6-dinitrophenol	534-52-1	111	0.8
Tetrachlorophenol	25167-83-3	759	TBD
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
2,2'-Methylenebis[3,4,6-trichloro]phenol	70-30-4	434	
4,4'-(1-Methylethylidene)bisphenol	80-05-7	128	
2-(1-Methylpropyl)phenol	89-72-5	603	
2-Chloro-4-phenyl-phenol/3-Chloro[1,1'-biphenyl]-4-ol	92-04-6	99	
4-(1,1-Dimethylethyl)phenol	98-55-4	694	
4-Chloro-2-(phenylmethyl)-phenol	120-32-1	588	
O-(2,4-Dichlorophenyl) O-methylisopropylphosphoramidothioate	299-85-4	563	
2-Cyclohexyl-4,6-dinitrophenol dicyclohexylamine salt	317-83-9	11	
4-Chloro-2-phenyl-phenol	607-12-5	136	
4-Chloro-2-cyclopentylphenol	13347-42-7	134	
Dinitrophenol	25550-58-7	354	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8081
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8081A (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
1,1'-(2,2,2-Trichloroethylidene)bis[4-chlorobenzene]	50-29-3	127	0.02
1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano-1H-indene	57-74-9	272	0.025
1,2,3,4,5,6-Hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta)-cyclohexane	58-89-9	417	0.02
3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aR,2R,2aS,3S,6R,6aR,7S,7aS)-rel-2,7:3,6-Dimethanonaphth[2,3-b]oxirene	60-57-1	327	0.02
3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aR,2R,2aR,3R,6S,6aS,7S,7aS)-rel-2,7:3,6-dimethanonaphth[2,3-b]oxirene	72-20-8	550	0.02
1,1'-(2,2,2-Trichloroethylidene)bis[4-methoxy-benzene]	72-43-5	495	0.02
1,1'-(2,2-Dichloroethylidene)bis[4-chlorobenzene]	72-54-8	125	0.02
1,1'-(Dichloroethenylidene)bis[4-chlorobenzene]	72-55-9	126	0.02
1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-Methano-1H-indene	76-44-8	425	0.02
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	77-47-4	432	0.02
Pentachloronitrobenzene	82-68-8	620	0.02
1,2-Dibromo-3-chloropropane	96-12-8	45	0.01
Hexachlorobenzene	118-74-1	429	0.02
Aldrin - 1,2,3,4,10,10-Xexachloro-1,4,4a,5,8,8a-hexahydro-(1.alpha.,4.alpha.,4a.beta.,5.alpha.,8.alpha.,8a.beta.)-1,4:5,8-dimethanonaphthalene	309-00-2	532	0.02
1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)Cyclohexane	319-84-6	174	0.02
1,2,3,4,5,6-Hexachloro-,(1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)-cyclohexane	319-85-7	220	0.02
1,2,3,4,5,6-Hexachlorocyclohexane	319-86-8	315	0.02
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-(1R,4S,4aS,5R,8S,8aR)-rel-1,4:5,8-dimethanonaphthalene	465-73-6	449	0.02
Ethyl 2,2-bis(4-chlorophenyl)-2-hydroxy-acetate	510-15-6	283	
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide,(3.alpha.,5a.beta.,6.alpha.,9.alpha.,9a.beta.)-6,9-methano-2,4,3-benzodioxathiepin	959-98-8	547	0.02
2,3,4,5,6,7,7-Heptachloro-1a,1b,5,5a,6,6a-hexahydro-,(1aR,1bS,2R,5S,5aR,6S,6aR)-rel-2,5-Methano-2H-indeno[1,2-b]oxirene	1024-57-3	426	0.02
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide-6,9-methano-2,4,3-benzodioxathiepin	1031-07-8	549	0.02
2-Chloro-N-(1-methylethyl)-N-phenyl- acetamide	1918-16-7	684	
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303-16-4	14	0.02
1,1a,2,2,3,3a,4,5,5,5a,5b,6-Dodecachlorooctahydro-1,3,4-metheno-1H-cyclobuta[cd]pentalene	2385-85-5	556	0.05

Target Analyte List: USEPA 8081
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8081A (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes (continued)			
1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-(1R,2S,3aS,4S,7R,7aS)-rel-4,7-methano-1H-indene	5103-71-9	158	0.02
1,2,4,5,6,7,8,8-Octachloro-2,3,3a,4,7,7a-hexahydro-(1R,2R,3aS,4S,7R,7aS)-rel-4,7-methano-1H-indene	5103-74-2	554	0.02
2,2a,3,3,4,7-Hexachlorodecahydro-(1.alpha.,2.beta.,2a.beta.,4.beta.,4a.beta.,5.beta.,6a.beta.,6b.beta.,7R*)-1,2,4-methenocyclopenta[cd]pentalene-5-carboxaldehyde	7421-93-4	551	0.02
Toxaphene	8001-35-2	772	0.17
6,7,8,9,10,10-Hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.alpha.,6.beta.,9.beta.,9a.alpha.)-6,9-methano-2,4,3-benzodioxathiepin	33213-65-9	548	0.02
1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-, (1.alpha.,2.beta.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene	39765-80-5	Added	0.02
Extended Target Analytes			
1-Chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethenyl]benzene (o,p'-DDD)	53-19-0	60	TBD
1,2,3,4,5,6,7,8,8-Nonachloro-2,3,3a,4,7,7a-hexahydro-(1.alpha.,2.alpha.,3.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)- 4,7-methano-1H-indene (cis Nonachlor)	5103-73-1	Added	TBD
2,3,4,5,6,6a,7,7-Octachloro-1a,1b,5,5a,6,6a-hexahydro-, (1a.alpha.,1b.beta.,2.alpha.,5.alpha.,5a.beta.,6.beta.,6a.alpha.)- 2,5-methano-2H-indeno[1,2-b]oxirene (Oxychlordane)	27304-13-8	Added	TBD
Pentachloro(trichloroethenyl)benzene (Octachlorostyrene)	29082-74-4	Added	TBD
Heptachlorostyrene	61255-81-0	Added	TBD
Polybrominated biphenyls (PBB)	67774-32-7	Added	TBD
Pentachlorostyrene	83484-75-7	Added	TBD
Hexachlorostyrene	90301-92-1	Added	TBD

Target Analyte List: USEPA 8081
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8081A (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Other Site-Specific COI (handled as TICs if found)			
Hexachloroethane	67-72-1	428	
3,5-Dibromo-N-(4-bromophenyl)-2-hydroxybenzamide	87-10-5	748	
1,2,3-Trichlorobenzene	87-61-6	40	
1,2,3,4,5-Pentabromo-6-chloro-cyclohexane	87-84-3	24	
1,2-Dichlorobenzene	95-50-1	47	
1,2,4,5-Tetrachlorobenzene	95-94-3	42	
1-Chloro-2,4-dinitrobenzene	97-00-7	352	
1-(4-Chlorophenyl)-ethanone	99-91-2	557	
1,4-Dichlorobenzene	106-46-7	56	
Bis(2-chloro-1-methylethyl)ether	108-60-1	222	
Bis(2-chloroethyl) ether	111-44-4	224	
Bis(2-chloroethoxy)methane	111-91-1	223	
1,3-Dichlorobenzene	541-73-1	51	
Pentachlorobenzene	608-93-5	618	
1,2,3,4-Tetrachlorobenzene	634-66-2	32	
1,2,3,5-Tetrachlorobenzene	634-90-2	33	
1,1'-Oxybis[2,3,4,5,6-pentabromobenzene	1163-19-5	314	
Pentachloromethoxybenzene	1825-21-4	617	
1,1,2,3,3,3-Hexachloro-1-propene	1888-71-7	435	
2,2-Bis(bromomethyl)-1,3-propanediol	3296-90-0	322	
4-Chlorophenyl phenyl ether	7005-72-3	137	
2,2-Dibromo-2-cyanoacetamide	10222-01-2	311	
Decabromobiphenyl	13654-09-6	313	
Hexachlorocyclohexane	27154-44-5	431	
1,1'-Biphenyl, ar,ar,ar,ar,ar',ar',ar',ar'-octabromo-	27858-07-7	592	
1-(3-Chlorophenyl)ethanone	29731-15-5	281	
2-ethoxyethyl 2-[4-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]oxyphenoxy]propanoate	87237-48-7	107	
2-(2,2-Difluoroethoxy)-N-(5,8-dimethoxy[1,2,4]triazolo[1,5-c]pyrimidin-2-yl)-6-(trifluoromethyl)- benzenesulfonamide	219714-96-2	558	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8082
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8082 (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
Aroclor 1260	11096-82-5	655	0.01
Aroclor 1254	11097-69-1	533	0.01
Aroclor 1268	11100-14-4	657	0.01
Aroclor 1221	11104-28-2	651	0.02
Aroclor 1232	11141-16-5	652	0.01
Aroclor 1248	12672-29-6	654	0.01
Aroclor 1262	37324-23-5	656	0.01
Aroclor 1242	53469-21-9	653	0.01
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
None			

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8121
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8121 (SW-846, rev. Sep. 1994)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
1-Chloro-2-[2,2-dichloro-1-(4-chlorophenyl)ethenyl]benzene (o,p'-DDD)	53-19-0	60	TBD
1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	77-47-4	432	TBD
Pentachloronitrobenzene	82-68-8	620	TBD
Hexachlorobenzene	118-74-1	429	TBD
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
None			

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8141
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8141 (SW-846, rev. Sep. 1994)
Test Procedure: Solvent extraction; GC/N-P, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
O-[4-[(Dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester phosphorothioic acid	52-85-7	139	TBD
O,O-Diethyl O-(4-nitrophenyl) ester phosphorothioic acid	56-38-2	611	0.05
O,O-Dimethyl S-[2-(methylamino)-2-oxoethyl] ester phosphorodithioic acid	60-51-5	338	0.2
O,O-Diethyl O-pyrazinyl ester phosphorothioic acid	297-97-2	586	
O,O-Dimethyl O-(4-nitrophenyl) ester phosphorothioic acid	298-00-0	507	0.04
O,O-Diethyl S-[(ethylthio)methyl] ester phosphorodithioic acid	298-02-2	639	0.02
O,O-Diethyl S-[2-(ethylthio)ethyl]ester phosphorodithioic acid	298-04-4	366	0.05
Phosphorothioic acid, O,O-dimethyl O-(2,4,5-trichlorophenyl) ester (Ronnel)	299-84-3	339	0.05
O,O-Diethyl O-(3,5,6-trichloro-2-pyridinyl) ester phosphorothioic acid (Chlorpyrifos)	2921-88-2	294	0.05
O,O-Dimethyl O-(3,5,6-trichloro-2-pyridinyl) ester phosphorothioic acid	5598-13-0	340	TBD
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
O-(2,4-Dichlorophenyl) O-methylisopropylphosphoramidothioate	299-85-4	563	
methyl-2-chloro-4-(1,1-dimethylethyl)phenyl methyl ester phosphoramidic acid	299-86-5	564	
N,N'-Dimethyl-, phenyl ester phosphorodiamidic acid	1754-58-1	530	
Tetraethyl dithiopyrophosphate	3689-24-5	760	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 8151
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 8151A (SW-846, rev. Dec. 1996)
Test Procedure: Solvent extraction; GC/ECD, GC/MS, or GC/MS/MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
2,2-Dichloropropanoic acid	75-99-0	72	0.5
Pentachlorophenol	87-86-5	621	0.01
2-(1-Methylpropyl)-4,6-dinitrophenol	88-85-7	351	0.2
2-(2,4,5-Trichlorophenoxy)propionic acid (2,4,5-TP)	93-72-1	66	0.3
2,4,5-Trichlorophenoxyacetic acid (2,4-T)	93-76-5	65	0.5
2-methyl-4-chlorophenoxyacetic acid (MCPA)	94-74-6	345	0.3
2-(2,4-Dichlorophenoxy)acetic acid (2,4-D)	94-75-7	67	0.2
4-Amino-3,5,6-trichloro-2-pyridinecarboxylic acid	1918-02-1	771	0.5
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
2,2-Dichloro-2-(2,4,5-trichlorophenoxy)ethyl ester propanoic acid	136-25-4	379	
2-Chloropropionic acid	598-78-7	103	
(2,4-Dichlorophenoxy)-2-butoxymethylethyl ester acetic acid	1320-18-9	121	
(2,4-Dichlorophenoxy)-2-butoxyethyl ester acetic acid	1929-73-3	83	
Acetic acid, (2,4-dichlorophenoxy)-, compd. with N-methylmethanamine	2008-39-1	69	
2-(3,5,6-Trichloropyridin-2-yl)oxyacetic acid	55335-06-3	70	
Haloxyfop-methyl	69806-40-2	423	

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 6010/6020
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 6010B/6020A (SW-846, rev. Dec. 1996)
Test Procedure: Acid Digestion; ICP-OES/ICP-MS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
Aluminum	7429-90-5	176	0.02
Iron	7439-89-6	445	0.02
Lead	7439-92-1	457	0.02
Lithium	7439-93-2	465	0.02
Magnesium	7439-95-4	469	0.02
Manganese	7439-96-5	486	0.02
Nickel	7440-02-0	571	0.02
Potassium	7440-09-7	672	0.02
Silver	7440-22-4	713	0.02
Sodium	7440-23-5	715	0.02
Strontium	7440-24-6	728	0.02
Thallium	7440-28-0	764	0.02
Tin	7440-31-5	767	0.02
Titanium	7440-32-6	Added	0.02
Antimony	7440-36-0	199	0.02
Arsenic	7440-38-2	204	0.02
Barium	7440-39-3	207	0.02
Beryllium	7440-41-7	219	0.02
Boron	7440-42-8	228	0.02
Cadmium	7440-43-9	244	0.02
Chromium	7440-47-3	295	0.02
Cobalt	7440-48-4	300	0.02
Copper	7440-50-8	301	0.02
Vanadium	7440-62-2	Added	0.02
Zinc	7440-66-6	797	0.02
Calcium	7440-70-2	245	0.02
Selenium	7782-49-2	710	0.02
Extended Target Analytes			
Gold	7440-57-5	421	TBD
Other Site-Specific COI (handled as TICs if found)			
None			

Notes:
TBD = To Be Determined

Target Analyte List: USEPA 7471
Chemical Method References and Reporting Limits
TR and USR GeoMorph Site Characterization QAPP
Midland Soils Site Characterization QAPP

Test Reference: USEPA 7471A (SW-846, rev. Dec. 1996)
Test Procedure: Acid Digestion; CVASS detection

Parameter	CAS No.	Dow ID	Reporting Limits (mg/kg)
Standard Target Analytes			
Mercury	7439-97-6	490	0.05
Extended Target Analytes			
None			
Other Site-Specific COI (handled as TICs if found)			
None			

Notes:
TBD = To Be Determined